ASL

Australian Society
for Limnology Inc.

family Naucoridae: juvenile

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AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

The Australian Society for Limnology (ASL) is an Australian-based scientific society whose focus is the study and management of inland waters. The ASL was established in 1961, and has a current membership of over 500 researchers, managers, engineers, teachers and tertiary level students from all states and territories. Members have a strong professional interest in inland aquatic issues, including the maintenance of biodiversity, the maintenance and/or restoration of water quality, and the wise use of aquatic resources. The Society also has a strong interest in fostering the scientific and intellectual development of tertiary students.

The Society includes members working in government agencies, tertiary institutions and many industries related to aquatic resources. Through their daily activities, members have contact with local communities and are in a sound position to interpret and advise on inland water issues. The Society has a substantial knowledge base, and has assumed a responsibility to ensure that this is available to those who manage inland waters.

Accordingly, the charter of the ASL is to further our understanding of Australia's inland waters and to promote their wise use and sustainable management. In this manner we will contribute to the continued existence of this valued resource and the maintenance and enhancement of the quality of life for all Australians.

The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

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Membership Information and a list of the Regional Executive Officers can be found at the back of this Newsletter

Front cover illustration (juvenile Naucoridae) by Jane McRae, Conservation and Land Management, P.O. Box 51, Wanneroo, WA 6065

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Long articles should be forwarded as unformatted text on a disk or via email.

ASL Home Page

http://www.ntu/edu/au/science/mdouglas/asl_home.html

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EDITORIAL

Well, that was a good start to demonstrate my skills at newsletter editorship – completely miss one issue. Now I get it, I have to go and actually hassle people to write stuff, it doesn't just materialise out of thin air. But it is traditional for new editors to stuff things up, or so Fran tells me.

I follow in the footsteps of many great ASL newsletter editors, Fran Sheldon, Leon Doeg and Tim Barmuta, I think Andrew Boulton was in there for a while and Jenny Davis and co-workers of course. I don't know of any editors before these people, but I have heard rumours that the newsletter did exist before Jenny's time.

I wish to thank Fran for letting me "take over" and for her efforts over the last few years. She has made the management of the newsletter much easier than it was in the bad old days. It is basically a one person show now and you don't need a team of students (i.e. slaves) at hand to label and bag the 600-odd newsletters.

As the new editor I have made a few changes and put in a few new sections. One of the ones I have put in for this newsletter is "What I do for a Crust". For each newsletter I will target a person in a different area of limnology and get them to tell us the bad bits of their work, the good bits, the really bad bits and what they actually do in their job. I had someone from Sydney Water lined up but Tim Doeg's effort in describing his new approach to capitalism was so good I have moved it from the scuttlebutt section to this new one.

The bibliography section only just made it to this issue. Russ Shiel did not receive any papers until 3 days before the deadline. I am positive there is more being published than is being sent to the bibliography. I know it is not on the list of priorities of many people but I call for members to send the details of their papers to Russ.

I have also added a crossword and a page devoted to Elvis. For the sake of politeness I have avoided any Sydney Water or Clinton jokes.

For everyone's information, I am planning four issues for 1999. There are plans (on my part, with support from the executive) to gradually move some of the issues to be published on the internet as well as paper copies. The sticking point for electronic copies, at the moment, is finding someone to take over the ASL web page. As soon as we find someone I will publish joint issues on the web as well as paper copies to see how popular the internet newsletter will be.

Oh by the way (please excuse the clichés), Merry Christmas to you all, see you in the new year.

FROM THE PRESIDENT

Well that's another conference done. Over the last three days the New Zealand Limnological Society have held their 31st Annual Meeting, and as a precursor to next year (which I'll get to in a minute), Vice-Pres. Jane Chambers and I attended, along with about seven other Australians. It was a beauty. Over 120 people in all, three days of talks, wonderful food, plenty of gratis beer and wine, a perfect venue, friendly and tolerant organising group, and the usual plethora of jokes about New Zealand and Australian accents.

Dunedin provided its charm and character, and all its services (cafés, restaurants and pubs) in walking distance and in great variety. The topics spanned a very wide range, including all the key biotic groups (i.e. diatoms, cyanobacteria, macrophytes and charophytes, protozoans, invertebrate groups and fish). And there was an amphipod taxonomy workshop lead by (ASL founding member) Ann Chapman! Physical and chemical processes were there too, although numerically more limited compared to biotic ones, but notably included exposés of water temperatures, instream solutes and carbon cycling, as well as the physico-chemical variability provided by shading. Much to my joy of course was a developing theme on the role of freshwater crayfish in stream functioning, but several other themes emerged. Data on the role of bacteria and fungi in trophic studies, using assimilation trials and carbon and nitrogen isotope ratios, were presented in several talks. Many talks addressed the concept of "indicators", and monitoring in general, or biomonitoring specifically, was treated extensively.

The preponderance of talks dealing with fish became apparent on day one when the meeting was kicked off with a keynote address by Bob McDowall on fish distributions. One memorable session involved a critique and response on the role of fish in structuring zooplankton communities. Above all, the group had the same feel as it might have had in Australian limnology - same sort of people I guess; friendly, innovative, strongly supportive of student members, and at the cutting edge. What struck me about the meeting was the significant paralleling in cross-Tasman limnologies. There is every reason why ASL members should be attending NZ limnology meetings, and vice versa. Perhaps that reasoning is behind next year's joint conference. For the first time (I think), and at the initiative of the New Zealanders, ASL will be holding its annual congress jointly with the New Zealand Limnological Society. It is scheduled for late November/early December 1999, in the Waikato region (probably near a geothermal vent somewhere). Mark it in your diaries now!

Before I go, can I continue my plea for members to register on the ASL listserver (you can get the details from ASL's website – http://www.ntu/edu/au/science/mdouglas/asl_home.html). While I'm at it, it is wonderful to have Ivor taking up the reins of the newsletter editor!
Further, we are seeking a website manager for ASL's homepage. Is anyone interested? (if you are please let me know!). I hope that this finds you resting somewhere with your feet up, or failing that, enjoying your festive season in other ways. See you next year.****

Pierre Horwitz

BAVARDAGE, PRAMOUR, KLATSCH AND SCUTTLE.

QUEENSLAND

QLD Dept. Natural Resources Lab.

The First National Assessment of River Health Program is well underway with the fourth round of sampling (spring 1998) just about to be completed. The so called "normal year" (when did we have the last one?) rains are causing a bit of a havoc, especially up north and out west. Streams and rivers are well above normal levels and sampling will either have to be delayed to missed out altogether. **Marcus Stowar, Diane Conrick, Chris Marshall** and **Satish Choy** have all been out to the various parts of the State catching bugs. **Jon Marshall** damaged his knee (playing indoor soccer he says) and had to be left out of the sampling roster. **Sandra Grinter** (UNE) joined the team in October and is very quickly learning the ropes.

The team presented three papers at the ASL Conference at Ivory Rock in April. **Jon and Glen McGregor** (the blue green algae man) also presented a joint seminar at the Brisbane River Festival. **Satish** attended the SIL Congress in Dublin and, in keeping with the Congress theme, joined in some "Uisce Beatha" sampling sessions (in addition to the dark fluid).

From **Satish Choy**

Centre for Catchment and In-Stream Research, Griffith University, Brisbane

The big event of September/October for the CCISR (Centre for Catchment and In-Stream Research) crew was the biennial pilgrimage to the Channel Country of western Queensland. The team included: new research fellow **James Udy** who was collecting sediment for a study of nutrient cycling; **Thorsten Mosisch** identifying algal scums; **Pete Davies** (of UWA) and his travelling circus of benthic metabolism domes; Honours student **Sam Capon**, her co-supervisor **Mike Olsen**, and **Neil Petit** (also of UWA) working on riparian vegetation projects; **Michelle Winning** collecting anything and everything remotely-aquatic for stable isotope analyses; and **Stuart Bunn** and his eldest son. This is the fourth expedition to Cooper Creek as part of **Stuart**'s great dataless, conjecture-full (and very sexy) study of riverine and floodplain productivity in the semiarid region of southwest Queensland.

Stuart is also working hard to maintain his platinum frequent flyer status. In October he flew to PNG with **Andrew Storey** for a quick visit to the Fly River to collect isotope samples for an aquatic foodweb study. And in November, he went to Vienna for the `Assessing Ecological Integrity of Running Waters' conference. **Thorsten Mosisch** is working on several projects including: the trophic status of dune lakes on Fraser Island for the CRC for Sustainable Tourism; the effects of nutrients and shading on algae (mostly in

the Mary River catchment); and impacts of powerboating on an island dune lake for the Redlands Shire on (he tells us his waterskiing is improving rapidly). **Vanessa Fry** has rejoined **Michelle Winning** in the stable isotope laboratory on a part-time basis after a year of full-time baby-caring.

Fiona Balcombe has been back and forth to her field sites in the Conondale Ranges where she was running experiments examining substrate preferences of benthic invertebrates and establishing a link between sediment-dwelling invertebrates and bacteria. **Steven Balcombe** (of La Trobe University) has just returned to Brisbane after presenting a paper at the Fish Biology conference in Hobart. He is writing up his thesis, sorting fish guts for **Stuart** and indulging in any other "justifiable" distractions available. **Romeny Lynch** is still sorting riparian insect samples from fieldtrips to Kakadu in September 1997 and May 1998. **Peter Negus** is splitting his time between sorting drift, deposition and kick samples from north Queensland, examining fish guts and setting up laboratory isotopic enrichment experiments. **Wade Hadwen** is in the early stages of planning his Ph.D. - something to do with effects of tourism on water quality, aquatic inverts, etc. on freshwater lakes of Fraser Island (some people will do anything to stay at Kingfisher Bay Resort!).

Heather Proctor is trying to find out whether the neglect, typically accorded to mites in surveys of stream macroinvertebrates is deserved, or if benthic ecologists are missing an important component of diversity. **Kylie Dwine**, a Ph.D. student co-supervised by **Heather Proctor** and **Lester Cannon** (of the Queensland Museum), is engaged in an ABRS-funded taxonomic survey of microturbellarian flatworms of southeast Queensland. The worms have been fairly elusive over the winter, but seem to be perking up with the warmer weather.

Margaret Greenway's melaleuca studies in the nationally significant Carbrook Wetlands continue, with litter fall collection now in its 7th year. Three environmental engineering students have been monitoring water quality up- and down-stream of the wetlands as projects for their final (4th) year theses.

From **Romeny Lynch** and **Peter Negus**

NEW SOUTH WALES

Aquatic Botany and Ecosystem Management, University of New England

There is a fair bit of movement in both the Aquatic Botany and the Ecosystem Management group at the moment due to several departures and appointments and the finalising of theses.

Margaret Brock has had a busy teaching semester. She has been very committed to teaching her new distance education course in Aquatic Botany and a hectic round of residential schools and excursions. She has also been busy teaching both Aquatic Botany and Aquatic Ecology to our internal students. She has been writing the final report for the wetland plant establishment project and milestone reports for the water regime and reproduction project. In their spare time **Andrew Boulton** and **Margaret** are also making noises about the first draft of their Aquatic Ecology text. **Margaret** is looking forward to a

sabbatical visit from **Professor Mary Leck**, wetland seedbank ecologist from New Jersey, in October.

Michelle Casanova departed our group in June and is now the proud mother of a 4 month old son, **Robert**. She leaves us for Victoria at the end of the year and in January will be settling up charophyte and turbidity experiments in Hamilton, New Zealand as a visiting research fellow.

Nigel Warwick attended the ASL Conference in Brisbane where he gave a paper on water regime and wetland plant reproduction. He has left the water regime and plant reproduction project to take up his new position of half time lecturer in Botany.

Chris Cooper has continued to support and maintain the Newholme Wetland project as well as his other commitments to Botany.

Jill Divola has just spent several weeks in the NT visiting Kakadu where her eldest daughter has a new position with the Jabiru Hotel. **Jill** has been passing her exams with distinctions and high distinctions while demonstrating at practicals and working as usual as major technical support for our research projects, proving that it helps to work in the field. **Katharine Crossle** is finalising her Honours thesis after attending her first ASL conference this year when she presented a poster on her project.

Janet Smith, our Tasmanian student, has been busily compiling seed bank data from two experiments she conducted on five temporary wetlands sites around the state. In November she will be heading off for her last field session. The last few seasons have been particularly interesting as all her wetlands sites dried out in autumn and then 4 of 5 wetted up again during winter (one of which had not had lying water, in such an extent, for at least 6 -7 years). In December she will be looking at several farm dams to determine what type of species diperse easily throughout the landscape. Next year will be spent compiling her data and writing up her Ph.D.

Annabel Douglas Hill is still in the process of writing up her Masters thesis but has postponed submitting it due to her recent marriage. She will be moving to live in the Philippines in December for 3 -5 years but swears she will attend the ASL conferences and finish her thesis. She hopes to work in wetland research or management so is busy chasing up contacts.

External Masters student **John Porter** working with the Paroo wetland seed banks had the chance to show **Margaret** his experimental set up down in Wollongong before the foods. Lucky most of the data have been collected from the experiment and he is into data collection and collation.

Andrew Boulton has been away playing in the Northern Hemisphere this semester while on study leave. Still travelling in Ireland, Scotland, England and France - he says it's all hard work.

In the meantime **Kim Jenkins** has been following floods on her experiments, **Sue Botting** has been collecting samples in between rain events, **Colleen Watts** has been thinking about

plant experiments to go in her project and **Sandra Grinter** has been madly sorting samples and writing. **Sandra** has recently moved to Queensland to sort more invertebrates (for money this time she says!).

from **Annabel Douglas-Hill**

Murray-Darling Freshwater Research Centre

Lor-wai Tan, who has been working on MDFRC zooplankton projects after completing her APA/CRCFE Ph.D. on testate amoeba ecology at LaTrobe's Wodonga campus, has returned to molecular genetics. **Lor-wai** has taken a 3-yr research fellowship in Haematology and Oncology at Adelaide's Queen Elizabeth Hospital.

John Green, Assoc. Prof. at the University of Waikato, Biol. Sci., is spending 9 mo. at MDFRC working on calanoid copepod predation, ciliate epizoites on calanoids, floodplain food webs and other exciting microcritter stuff with **Russ Shiel**

Visitors impending at MDFRC: From the University of Milan - Drs **Claudia Ricci** and **Giulio Melone**, who specialize in bdelloid rotifers. **Claudia** has been involved with the NASA Shuttle project, putting bdelloids in orbit. Both will be working on resting stage emergence, dispersion and population dynamics of bdelloids while at MDFRC. Also due early in the New Year, Dr **John Langley**, from the University of Middlesex, who will be working with **Terry, Dazza, Russ, John** et al. on microfaunal recruitment into mesocosms.

From **Russ Shiel**

AUSTRALIAN CAPITAL TERRITORY

No Correspondence

NORTHERN TERRITORY

The Environmental Research Institute of the Supervising Scientist

Max Finalyson, Bob Pidgeon and **Lisa Thurtell** recently attended an "Indigenous use of wetlands" workshop held at Batchelor College. This workshop was organised by the Centre for Tropical Wetlands Management and the Centre for Indigenous Natural and Cultural Management as part of a proposed series of workshops on wise use of wetlands. Many Aboriginal people spoke and/or presented videos which outlined some of the issues they faced as wetland users and owners. The range of problems discussed covered direct wetland issues (e.g. weeds, feral animals, harvesting, fire, tourism, water regime) plus issues of access to resources, enforcement of rights of access and trespass, respect and processes for interacting with traditional owners. **Max Finlayson** presented a paper on future problems for wetland managers which included climate change and tidal barrages.

Max Finlayson and **Chris Humphrey** attended a NT environmental flows workshop in Darwin. **Angela Arthington** from Queensland and **Jeff Kite** from WA were two of the

interstate talkers looking at issues and approaches for managing water flows. NT issues are more groundwater than surface or impoundment based.

In conjunction with Wetlands International Oceania ERISS have been undertaking a vulnerability assessment to climate change and sea level rise of Olango Island, Philippines and Yellow River Delta, China. A person from each site has been to Jabiru to initiate the analysis and prepare for a workshop in each country. **Rick van Dam** and **Max Finlayson** will participate in these workshops.

Max Finlayson is still participating in the Macquarie River Management Committee as an independent scientist. After the last meeting he was seen paddling and walking his way toward the waterbird nesting colonies in the marshes, under guidance from the local parks staff.

Bob Pidgeon has recently returned from Lake Murray and Porgera mine in PNG. **Bob** has been offering technical advice to the Porgera Environmental Assessment Komiti (PEAK). PEAK were established in 1997 by Porgera Joint Venture who operate a large gold mine in Eastern PNG. Recently PEAK have been involved in the investigation of fish kills during the filling of Lake Murray following the drought. Bob will be returning to PNG in early November for another meeting with PEAK.

Abbie Spiers and **Max Finlayson** are completing their analysis of wetland inventory effort in Australia, under a contract to Environment Australia's wetland program. This will culminate in a small technical workshop in Darwin to discuss the basis of draft protocols for a national wetland inventory approach. These protocols will be developed and finalised with various agencies under NHT agreements with the States/Territories.
Abbie & Max will also attend the Wetlands International Board Meeting and 2nd International Conference on Wetlands and Development in Dakar, Senegal 7-14 Nov 1998. They will present their results of a global review of wetland inventory to a workshop that will further look at priorities for inventory at a global scale. This is also being done in conjunction with Wetlands International and with support from the Ramsar Bureau and UK Government. The results from the global review project will feed into two further workshops. The first aims to develop data management systems for wetland information storage and use. The second will review wetland inventory and monitoring techniques and identify priorities, especially for the African region.

Max will also represent the Wetlands International Specialist Group on Wetland Inventory and Monitoring which will launch its recently agreed 3 year program. There will also be a reunion of the dwindling band of Vomitting Mosquitos which was formed in St Petersburg, USA in 1992 in response to urgent pleas from Columbian and Peruvian wetland experts.

Max, Rick van Dam and **Chris Humphrey** have completed a paper on Wetland Risk Assessment which will form the basis of a draft decision to be presented for consideration by the 1999 Ramsar Convention Conference in Costa Rica. The draft decision takes into account an analysis of the Ramsar site information sheets that was done by **Yvette Pedretti** from Murdoch.

Max also participated in a workshop to elaborate a wetland risk assessment project in Mexico and Brazil. This was under funding from the European Union and involves a consortium of European and Latin American institutes. Montezuma made an all out assault on the visitors from across the oceans, but Max escaped unscathed and said something about sipping tequila with a Scotsman. This project represents an example of our increasing interest in wetland risk assessment and work outside our normal 'wading' ground of the Magela Creek.

We have also had discussions with the World Heritage Convention mission which is investigating whether or not Kakadu National Park should be considered an 'endangered' world heritage area. The mission was arranged after representations made to the World Heritage Commission earlier this year and includes Australian and international experts. It is considering both the natural and cultural reasons for listing Kakadu as World Heritage. Watch the news media for more comment.

A group of Malaysian Government and Wetlands International-Asia Pacific (WI-AP) staff took part in a Study Tour to Kakadu National Park in July. The major objective of the Study Tour was to provide the participants with an understanding of how Ramsar-listed wetland sites are managed. The program was coordinated by ERISS in collaboration with Parks Australia North (PAN).

WI-AP is assisting the Malaysian Ministry of Science, Technology and Environment to develop an integrated management plan for Tasek Bera. Tasek Bera is a large freshwater lake and swamp in south-central Malaysia. In 1994, the Malaysian Government designated Tasek Bera as its first wetland of International Importance under the Ramsar Convention. Many of the issues relevant to Tasek Bera are similar to those for Kakadu, and include eco-tourism, indigenous peoples' involvement, pollution, exotic species and Park monitoring. Discussions and field trips on management issues common to both Kakadu and Tasek Bera were held at various locations around the Kakadu.

ERISS is currently instigating a biological monitoring program to assess the possible impact upon aquatic ecosystems arising from Jabiluka uranium mine. Monitoring programs being developed for the mine and its construction, focus on detecting impacts in Swift Ck downstream of the minesite and in streams downstream of proposed haul road crossings. Macroinvertebrate and fish community data have already been gathered from paired upstream-downstream sites in a number of streams on and off the Jabiluka lease. Baseline bioaccumulation data on metals and radionuclides in the tissue and organs of fish from lowland billabongs is currently being collected.

While erosion abatement measures are being implemented, it is expected that suspended solids will be enhanced in Swift Creek from construction at the mine during the upcoming wet season. An Honours student is being recruited to assess the effects (if any) of enhanced concentrations of suspended solids on the macroinvertebrate community in Swift Creek during this wet season.

From **Lisa Thurtell**

The Centre for Tropical Wetlands Management, Northern Territory University

Michael Douglas and **Ruth O'Connor** are putting jeans and jumpers back in mothballs after a lightning visit to the Nation's Capital to attend the National Wetlands R & D project review meeting. This marks the 1 year milestone for the Para grass project that we are funded for under the program. Progress has generally gone according to plan with some interesting results from **Stuart Bunn's** and **Peter Davies'** work on isotopes and metabolism indicating that epiphytic algae may be the driving force of these floodplain systems rather than the rather more obvious and spectacular macrophytes. The jury's still out on the biodiversity issue but the upcoming round of sampling should give us a more definite picture on the effects of this pasture grass/weed.

The CTWM and CINCRM jointly ran a very successful workshop on Indigenous use of wetlands. The workshop was held in Batchelor College and was attended by about 100 people, with participants from WA, Qld, SA and the NT. Presentations covered a range of topics on the use and management of freshwater and coastal wetlands and there were some great video presentations in addition to spoken papers. The workshop provided an opportunity for the exchange of ideas and knowledge and in addition to identifying current and potential wetland management issues, helped put people in contact with agencies who could provide advice or funds to help with future management. Proceedings in written and video format will be prepared over the next few months.

From **Ruth O'Connor**

TASMANIA

No correspondence

SOUTH AUSTRALIA

Australian Water Quality Centre

The macroinvertebrate monitoring unit has continued to have a busy year since **Rob Walsh** joined us in February. A few new wetlands projects utilising **Rob's** Zooplankton expertise are in the pipeline. **Sam Wade** continues to live as a student 3 days a week and bug pick 2 days.

Rob Walsh nearly made headlines throughout Australia about 2 months after arriving here. One Tuesday morning at 4 am the police knocked on his door. Monday nights "Australia's Most Wanted" had a description that a neighbour of **Rob's** took to be an infamous bank robber living in the flat near him. Not easy to find a birth Certificate to placate two police at 4 am with one hand holding up your pyjamas.

The SA MRH team have been expanding their knowledge of the state's streams and bakeries during field work in autumn. There aren't too many systems we haven't visited already and the sites on Kangaroo Island and the South-east of the state have been particularly well blanketed. It will be hard work finding spaces between the pins on the map to choose new sites next year. We also ventured back to the far north of the state to sample the Diamantina River and Cooper Creek, the fishing was particularly good in the Diamantina. Now that funding has been approved for the modelling part of the project perhaps we can find out how healthy these places are. **Chris Madden** attended SIL in Dublin where a large contingent of Australians were present. **Paul McEvoy** was also on leave and visited **Ruth O'Connor** in Darwin.

From **Peter Schultz**

WESTERN AUSTRALIA

Aquatic Ecosystems Research Group, Environmental Science, Murdoch University.

Kerry Trayler and **Jenny Davis** are planning to drink a bottle of very nice champagne in the near future as **Kerry**'s Ph. D. thesis on: Forestry activity and fine sediment: influences on benthic invertebrate communities and stream processes has just been passed. **Kerry** is now working on catchment management with the Water and Rivers Commission in Perth. **Melita Pennifold** is nearing the write-up phase of her Ph. D. on macrofauna and nutrient cycling in the Swan River Estuary. **Melita** is recuperating from an operation on her ankle and has put her forced immobilisation to good use by completing the processing of her benthic samples. **Sabaruddin Tjokrokusumo** is also making good progress with processing the large number of invertebrate samples that have accumulated in his project investigating invertebrate use of constructed wetlands.

Belinda Robson and **Ed Chester** have moved from Murdoch to Deakin University in Warrnambool where **Belinda** has taken up a Lecturership in the School of Ecology and Environment. Ties with Murdoch still remain however as **Belinda, Ed** and **Jenny** are writing up papers from their LWRRDC funded project on the role of turbulence in stream ecology. **Belinda** and **Jenny** are also co-supervising **Deb Thomas** who started her Honours project mid-year. Deb is investigating the influence of coarse woody debris (snags) on near bed flows in the Serpentine River , using the ADV. **Jo Vaisey and Sam Norton** also started Honours mid year on aquatic topics. **Jo** is investigating the influence of fringing vegetation on the dispersal of midges (Chironomidae) from urban wetlands and **Sam** is investigating the interactions between Gambusia and Daphnia in Bibra and Yangebup lakes. Current visitors to Murdoch are **Andrew Boulton** and **Pierre Marmonier**. Their major objective is to sample the hyporheos of southwest rivers however some incidental sampling of southwest wineries is also likely to occur.

From **Jenny Davis**

VICTORIA

School of Ecology & Environment, Deakin University, Warrnambool

After attending the NABS conference and travelling around NE America for a couple of weeks, **Ed Chester** and **Belinda Robson** returned to Perth, wound up their LWRRDC project with **Jenny Davis** and headed off to greener (soggier!) pastures at Deakin Uni. **Belinda** has taken up a position as Lecturer in aquatic ecology in the School of Ecology & Environment and **Ed** is busy analyzing loads of data. **Belinda** is also interested in hearing from potential Honours and postgraduate students wanting to study freshwater ecology in beautiful Warrnambool in Western Victoria.

After that disgraceful piece of advertising, several other freshwater projects are underway here at the moment. **Scott Hardie** is just finishing an Honours project with **Laurie Laurenson** looking at the physical, chemical and biological characteristics of Lake Surprise in western Vic with emphasis on assessing the possibility of eradicating the introduced species from the system - particularly redfin. **Peter Kolatelo** has just begun an Honours project assessing the effectiveness of a newly constructed fish ladder in the Merri River. Also **Tim Howell** is looking at the biology of the estuary perch in the Hopkins River as well as attempting to quantify morphological variations anecdotally evident between riverine and estuarine populations of this species.

Brad Mitchell also has a swag of projects underway. **Peter Lind** is doing his masters on environmental flows in the Glenelg and Wimmera rivers, and **Brad** is working on conceptual models of environmental flows in lowland rivers. **Brett Ingram** is doing a Ph.D. on plankton dynamics in fish larvae ponds at Snobs Creek. **Jose Chavez** has just submitted a Ph.D. thesis on dynamics of detritus based pond systems for the production of yabbies and **Tricia Paradise** has just submitted an Honours thesis on the control of nuisance growth of *Ruppia* in a shallow coastal lagoon. **Sarah Boulton** and **Nicola Crane** are midway through their Honours projects on macroinvertebrate communities in deep salinized holes on the Glenelg and Wimmera Rivers and monitoring of Picanninie and Ewens Ponds in SA, respectively.

From **Belinda Robson**

Latrobe University, Wodonga

During July **Phil Suter** visited Western Australia in disguise as a Team Manager for the Victorian Roller Hockey Team. During this time in WA he was able to collect baetids with the help of **Brenton Knott** and has confirmed the species Baetis soror does not occur in eastern Australia.

Phil also attended the 9th International Conference on Ephemeroptera and the 13 International Symposium on Plecoptera in Tafi del Valle, Tucuman, Argentina in August. It was good to see other Australians there, but more importantly was the ability to speak with all delegates. There were 25 countries represented and about 80 people. Great opportunities to discuss issues over the ambiance of some locra and cervesa. **Phil** gave a paper on Platybaetis from Northern Australia. The conference tour to the Iguazu Falls was really the

highlight. In addition a large dam constructed on the border of Paraguay and Brazil on the Parana River (Itiapu Dam) was also visited. This dam has a storage capacity 7 times larger than Dartmouth and when closed filled in 14 days. Gives some idea of the volumes of water in the area.

Phil is currently working on the illustrated key to the Caenidae for the February Workshop at MDFRC, and has completed work on Bungona, and a new genus of Caenid. papers on baetid genera received a set back when 4 papers on Australian mayflies were published by workers at Purdue University based on a small collection made in 1966. More about that at the workshop.

From **Rhonda Butcher**

Museum of Victoria

Richard Marchant and **Genevieve Hehir** have begun a new project funded by the CRC for Freshwater Ecology on the effects of dams on downstream invertebrate communities. They will be sampling sites immediately below dams in both Victoria and southern NSW and applying the AUSRIVAS models to determine the extent of disturbance to the benthic communities. The aim is to get a broad view across south-eastern Australia of the effects of dam construction.

From **Rhonda Butcher**

Water Studies Centre - Caulfield

The Water Studies Centre has been uprooted and moved to the Clayton Campus of Monash, the move came when half of the Centre's personnel are getting over their recent junket, sorry-excursion- to Lombok for the Australian-Indonesian Conference on Water Quality and Waste Treatment. Amidst the mayhem of the move, **Barry Hart**, **Peter Breen**, **Mike Grace** and **Chris Walsh** have begun a new project on the ecology of the Yarra River. Microbial ecologist, **Sophie Bourgues**, is a new arrival from NSW EPA. She will be working on nutrient fluxes between sediment and water column on a NEMP project, and the Yarra. In the coming summer, **Mike** and **Ian McKelvie** are looking forward to halcyon days at Mt Buller sampling the Howqua (once the bridge has been rebuilt after one of their less-halcyon trips earlier in the year).

Jason Van Berkel, having graduated with his Ph.D., is now working with Ron Beckett on sediment-nutrient processes. **Thomas Jakob** is a visiting post-doc from Karlsruhl also working with **Ron, Mike** and **Barry** on an Australian-German sediment project. In **Ron**'s group working on instrument development for size-based speciation, **Shoeleh Assemi** and **Soheyl Tadjiki** are both writing up their Ph.D.s, **Nim Tri** has just begun hers, **Jaiwei Lei** has taken time off her masters to have a baby and **Reshmi Sharma** has just had a baby girl.

Of the Ph.D. students of the centre: **Jason Sonneman** has been building and testing bullet-proof diatom samplers for his large-scale study relating community composition to variation in nutrients; **Ian Fraser** spent June madly measuring nutrients in Cairn Curran Reservoir during an unseasonal algal bloom; **Belinda Lovell** has been keenly waiting to catch flood events in the Latrobe River to measure P using a portable analyser; **Rod Ferdinands** has been crunching lots of numbers to develop a regional model of turbidity in Victorian streams; and **Gillian Beattie** has been busily travelling to and from her study sites at Mildura, Wangaratta and Seymour via conferences in Nova Scotia and Lombok (tough for some).

From **Rhonda Butcher**

OBITUARY

DR ERNEST P. HODGKIN, OAM, 1908-1998

Dr Ernest Hodgkin died in Perth on 23 September, 1998. He was probably not well known by many of the younger members of ASL, but in the "early days" he attended several ASL congresses. Most of his work in recent decades was on estuaries (in WA) rather than inland waters. Estuarine ecology is at the interface of limnology and oceanography, and Ernest tried to keep a foot in both camps by holding for several years membership of both ASL and AMSA. It is entirely appropriate, therefore, that his passing should be properly noted in the ASL Newsletter.

Ernest was born in Madagascar in 1908 but grew up in the United Kingdom. After graduation in 1931, he was employed as an entomologist in Malaya and worked on arthropod vectors of malaria, filariasis and rickettsial disease. In 1942, however, he was interned by the Japanese in Singapore as a Civilian Prisoner of War. His internment stretched out for 3 1/2 years and Ernest was finally liberated in August 1945 shortly after the fateful dropping of an atomic bomb on Hiroshima. When released he was in rather poor physical condition but his spirit and determination were unconquered.

In early August 1990, Ernest and I dined out together in Perth and during a long conversation I managed to draw out from him some of his war-time experiences. Here are some of the things I learnt. During his imprisonment, he first repaired spectacles and later
made them using tooth-brush handles for frames. The tooth-brush handles were rendered plastic by dipping them in hot water and then bent to make the frames into which slots were cut to hold the lenses. Some of Ernest's war-time spectacles were on display in the Fremantle Museum and some are in the National War Museum. One of his fellow prisoners developed cancer of the larynx and Ernest made a micro-saw which was used to excise the cancer by one of the interned medical doctors. Another man broke his hip and Ernest improvised a drill from a rickshaw spoke which was used to bore holes in the bone and so enabled the hip to be repaired with pins.

In 1946, Hodgkin was appointed to a lectureship in the Department of Zoology, University of Western Australia. He remained in this Department until his retirement from the position of Associate Professor in 1973. In 1950, Ernest was awarded a D.Sc. from the University of Western Australia for a series of contributions entitled "The transmission of malaria in Malaya".

My professional interaction with Ernest during the 1960's and 1970's revolved around our strong common interest in the ecology of the zooplankton of Australian estuaries. Working on opposite sides of the continent, Ernest and I and our students studied the ecology of calanoid copepods including the monotypic endemic species *Sulcanus conflictus* Nicholls [described by Aubrey Nicholls, the first President of ASL] and species of the endemic genus *Gladioferens*.

After his retirement, Ernest launched himself with great vigor into what was to become a long and sustained series of general studies of Western Australian estuaries. First he co-ordinated major studies into the Blackwood and Peel-Harvey estuaries. Later he turned his attention to the Wellstead estuary, a series of inlets (Nornalup, Walpole, Wilson, Irwin, Parry, Beaufort and Gordon) and finally to the estuaries of the Shires of Esperance, Manjimup and Ravensthorpe. These latter studies were published by the WA EPA in their "Estuarine studies series".

Ernest was awarded the OAM in 1983 for his services to education and research in Western Australia. In 1997, he was awarded the Royal Society of Western Australia Medal for outstanding contributions to aquatic science. The UWA marine research facility at Waterman was recently named the Ernest P. Hodgkin Marine Laboratory.

Hodgkin was active right to the end. His "Medal Lecture", "The future of the estuaries of south-western Australia" was delivered on 15 September 1997. Only recently I picked up his paper entitled "History and management of Culham Inlet, a coastal salt lake in south-western Australia"(J. Roy. Soc. W.A. 80(4), 239-247 [December 1997]).

Ernest Hodgkin was a man of great courage, determination and humility. I always found him cheerful, friendly and helpful.

Vale Ernest Pease Hodgkin. If you want to see his monument, look around you.

Ian A. E. Bayly
October, 1998

ANNOUNCEMENTS

AUSTRALIAN AQUATIC ECOLOGY

POST-GRADUATE WORKSHOP

April 27 - April 30, 1999

With the aim of establishing networks among new generations of biological scientists and environmental managers, the Australian Aquatic Ecology Post-Graduate Workshop has been held annually for the last eighteen years.

Aims

The workshop has three main aims. First, to bring together Post-Graduate students studying marine and freshwater ecology, from across Australia, to present and discuss their research. Second, to discuss important issues relevant to Post-Graduate students with each other and senior academics and researchers. Finally, to allow the opportunity for active participatory problem-solving of specific difficulties individual Post-Graduates may be having with their research.

Venue

The Conference is to be held at the University of Sydney's research station at Pearl Beach, NSW Pearl Beach is located just north of Sydney. The research station is situated in bushland behind the beach and is surrounded by the Brisbane Waters National Park. From the research station it is a short walk to the beach, rocky shore, arboretum, waterfall and spectacular lookouts over Broken Bay.

Format of Workshop

Presentations from Post-Graduates will be held over the three days of the workshop. Each Post-Graduate will present a twelve-minute seminar on their research. After each seminar there will be several minutes for questions and group discussion. All Post-Graduates are encouraged to attend, regardless of how far they are into their degree. Consequently, presentations will vary from possible research directions to completed experiments.

Within the broader goals of the workshop, there will be a symposium held over two evenings. The title of the symposium will be "How to get a job after the scholarship runs out". In the first session, Prof. Tony Underwood, Dr Gee Chapman and Associate Prof. David Ayre will discuss academic career strategies, focusing on how to obtain Post-Doctoral positions and how to make these positions successful. In the second session, Dr

Peter Scanes from NSW EPA, Dr Steve Kennelly from NSW Fisheries and Dr Marcus Lincoln-Smith from the Ecology Lab will discuss employment opportunities within the environmental science industry for those with Post-Graduate degrees.

Travel

Traditionally the conference has been well attended by students from Sydney and Melbourne. This year, however, we are offering substantial travel subsidies to students that have to travel large distances. So do not write it off just because you do not live on the South-East coast. For those who are travelling to Sydney via plane/bus/or train, there will be a free bus service that will take you to and from Pearl Beach.

Registration

The registration fee is $25. This includes food, accommodation and much more! Please do not forget to ask about travel subsidies.

Call for abstracts

The conference is aimed at Post-Graduate students researching **all** aspects of **marine** and **freshwater** ecology. Each student is required to submit an abstract. Abstracts should be brief and concise, yet permit objective evaluation of the research being discussed. Abstracts should be single-spaced using 12 pt Times New Roman Font, have no indents and be less than 300 words. The title of the paper should be in **bold** 14 pt Times New Roman Font. We require a hard and electronic copy of your abstract. The electronic copy must be saved as a MICROSOFT WORD 6 document in IBM format and sent on a 3.5" floppy disk. Alternatively, you can use our online registration service at http://www.bio.usyd.edu.au/SOBS/SRC_EICC/aaepgw/aaepgw.html

Registration closes on Friday, February 12th 1999. Unfortunately, numbers are limited to 35. So please, get in quick!!!

Any enquires should be directed to

Brendan Kelaher,
Marine Ecology Labs A11,
University of Sydney, 2006
email: bkelaher@bio.usyd.edu.au

The workshop is proudly supported by:

Centre for Research on Ecological Impacts of Coastal Cities
Australian Marine Science Association
Australian Fauna and Flora Research Centre
Marine Studies Centre, University of Sydney
Institute of Marine Ecology
NSW Environmental Protection Authority
NSW Fisheries
University of Wollongong
The Ecology Lab

Australian Aquatic Ecology
Post-Graduate Workshop

REGISTRATION FORM

Please post form, abstract and payment to:

AAEPGW, c/o Centre for Research on Ecological Impacts of Coastal Cities, Marine Ecology Labs A11, University of Sydney, NSW 2006

Registration closes **Friday, February 12th 1999**

Surname:.....

First name:.....

Name for name tag:.....

Full postal address:.....

.....

Day time phone number:.....

Email address:.....

Supervisor(s):.....

University or Research institution:.....

Type of degree (Ph.D. or M.Sc.):..... **Full time or Part-time:**.....

How long have been enrolled in your degree:.....

The cost of this conference is nearly entirely funded by supporting organisations. Nevertheless, there is a **small registration fee of $25** that includes all food and accommodation. Cheques should be made out to:

AAEPGW, c/o Centre for Research on Ecological Impacts of Coastal Cities

We would ask supervisors to help support the workshop by contributing to their Post-Graduate students costs of travel. Nevertheless, we intend to help subsidise students travelling long distances.

Do you require financial assistance with the cost of travel: **yes ( )** **no ( )**

Do you require transport from Sydney to Pearl Beach: **yes ( )** **no ( )**

Registration closes on Friday, February 12th 1999. Unfortunately, numbers are limited to 35. So please, get in quick!!!

AUSTRALIAN SOCIETY FOR LIMNOLOGY, SPECIAL PUBLICATION NO. 12

"Current Issues in Australian Limnology: Control and Management of Algal Blooms; River Regulation and Rehabilitation; and Quantitative Ecology"

Keynote Addresses and Specialist Sessions from the 36th Congress held at Albury-Wodonga, 27-29 September 1997.

If you would like your free copy of the report please contact:

Rhonda Sinclair
CRCFE/MDFRC
PO Box 921
ALBURY NSW 2640

Phone (02) 6058 2331
Fax (02) 6043 1626
email sinclair@mdfrc.canberra.edu.au

Cost to non-members of ASL is $20 (includes postage)

11th TAXONOMIC WORKSHOP

2nd - 4th FEBRUARY 1999

TRICHOPTERA EPHEMEROPTERA COLEOPTERA CRUSTACEA ODONATA

GUEST SPEAKERS:

John Bradbury, John Dean, Alena Glaister, Jackie Griggs
John Hawking, Phil Suter, Gunther Theischinger, Buz Wilson,

Workshop Program

TUESDAY 2nd FEBRUARY 1999

9.00-9.15 **Official opening Prof Peter Cullen**, Director CRCFE "Welcome address"

9.15-10.45 **Session 1. John Dean (EPA, Vic)** "Identification of hydropsychid caddisfly larvae"

11.15-1.00 **Session 2. Phil Suter (LaTrobe Univ.)** "Identification of caenid mayfly nymphs"

2.00-5.00 **Session 3. Alena Glaister (Monash Univ./CRCFE)** "Identification of elmid beetle larvae"

7.30 **Social event** Evening barbecue at MDFRC

WEDNESDAY 3rd FEBRUARY 1999

9.00-12.30 **Session 4. John Dean (EPA, Vic)** "Identification of leptophlebiid mayfly nymphs"

1.30-5.00 **Session 5. Gunther Theischinger (EPA, NSW) & John Hawking CRCFE/MDFRC)**

"(a) Key to the new families of odonates (b) Odonata larval identification"

7.30 **Social event** Evening activities to be arranged

THURSDAY 4th FEBRUARY 1999

9.00-10.30 **Session 6. John Bradbury (Adelaide Univ.)** "Identification of amphipod crustaceans"

1100-1230 **Session 7. Buz Wilson (Aust Museum)** "Interactive key to the pheatoicid crustaceans"

1.30-3.00 **Session 8. Jackie Griggs (CRCFE/ La Trobe)** "Identification of chydorid crustaceans"

3.30-4.00 **Session 9. John Hawking (CRCFE/MDFRC)** "Key to identification keys, 2nd edition"

VENUE: The Murray Darling Freshwater Research Centre, Ellis Street Thurgoona NSW 2640

COSTS: Registration fee includes lunches, morning and afternoon teas. Identification Guides will be produced for each session and the eight guides are included in the registration cost. The guide will be available for purchase by non-attendants.

ACCOMMODATION: Accommodation is the responsibility of the participant. Listed below are motel, hotel and caravan park accommodation near the Centre.

Thurgoona Country Club Motel, *Evesham Place, Thurgoona. Phone 02-6043 1666.* Single and Twin Share from $77-97. Within walking distance of the MDFRC laboratory.
Sodens Hotel-Motel, *Cnr. Wilson and David Streets, Albury. Phone 02-6021 2400.* Motel: Single $30, Twin $40. Hotel: Single $20, Twin $30. Light breakfast is included in both. Soden's is located in central Albury
Siesta Motel, 416 Wagga Road, Lavington. Phone 02-6025 4555. Single and Twin Share, both $80. The Siesta is 5km from the MDFRC laboratory.
Trek 31 Tourist Park, *Hume Highway, Lavington. Phone 02-6025 4355.* Cabin with ensuite, Twin Share $42. Van with ensuite, Twin Share $38. Van without ensuite, Twin Share $32. Additional persons can share the accommodation, $8 per additional person and $5 per additional child. Park units are available from $37 a double. Trek 31 is 4km from the MDFRC

CONFERENCE ENQUIRES: Rosie Busuttil (Ph 02-6058 2300) or John Hawking (Ph 02-60582340, hawkingj@mdfrc.canberra.edu.au), MDFRC, PO Box 921, ALBURY NSW 2640, Fax 02-6043 1626

Registration Form

Registration: Please complete this form and forward with payment to the "Taxonomic Workshop Coordinator", C/- MDFRC, PO Box 921, Albury NSW 2640, by **Friday 15 December 1998.** Please make cheques payable to the **Murray Darling Freshwater Research Centre.**

Name :_____
Institution:_____
Postal Address_____
_____
State:_____ **Post Code:**_____
Email:_____
Phone:_____ **Fax:**_____

REGISTRATION COSTS

Ordinary Participants		Full Time Students	
All 3 Days $250		All 3 Days $ 190	
Day 1 only $89		Day 1 only $64	
Day 2 only $99		Day 2 only $74	
Day 3 only $82		Day 3 only $57	
Evening BBQ $15		Evening BBQ $15	

Vegetarians please tick ☐

TOTAL		TOTAL	

Department of Geographical and Environmental Studies

University of Adelaide

Inaugural
Australian National
Algal Workshop

An Introduction to the Taxonomy and Ecology of Freshwater Algae and to the taxonomy and identification of Cyanobacteria and Diatoms

17. 2. – 19. 2. 1999

Second Circular

Introduction

The aim of the workshop is to improve the level of algal taxonomic knowledge in Australia and to provide a forum for algal workers to discuss issues of algal taxonomy (eg. Australian species descriptions) as well as algal ecology and related water quality issues. It is planned to run the national algal workshop yearly, focusing on a particular taxonomic group each time. To initiate the series, a three day workshop will be held giving an introduction to the freshwater algae, their taxonomy, ecology, physiology and reproduction on the first day. Day 2 and 3 will comprise an introduction to Cyanobacteria and to diatoms respectively followed by a detailed study of the genera and species in these groups found in Australia using new Australian keys prepared by the presenters.

Presenters

We have secured highly regarded algal workers who have many years of experience in Australian algal taxonomy to lead each of the days. They are:

Mr. Peter Baker
Australian Water quality Centre, CRC for Water Quality and Treatment.

Ms. Larelle Fabbro
Freshwater Ecology Group, Dept. of Biological & Environmental Sciences, Central Queensland University

Dr. Peter Gell
Dept. of Geographical & Environmental Studies,
Adelaide University

Prof. Peter Tyler
School of Aquatic Science & Natural Resources
Management, Deakin University

Participants are welcome to bring their own specimen for
Identification and discussion in the practical classes.
A Certificate of Attendance will be issued to participants.

PROGRAM

Venue - Polygon Theatre, Architecture Building

DAY 1 (Prof. Peter Tyler)

8.45 am - 9.15 am	Registration
9.15 am - 9.30 am	Welcome
9.30 am - 10.30 am	What is an alga? (physiology, ecology and reproduction)
10.30 am - 11.00 am	Morning Tea, University Club
11.00 am – 12.30 pm	Introduction to Freshwater Algae taxonomy
12.30 pm - 1.30 pm	Lunch, University Club
1.30 pm- 3.00 pm	How to distinguish the algal classes
3.00 pm - 3.30 pm	Afternoon Tea, University Club
3.30 pm - 5.30 pm	How to distinguish the algal classes (cont.)
6.00 pm	BBQ

DAY 2 (Peter Baker, Larelle Fabbro)

9.00 am - 10.30 am	Introduction to Taxonomy of Cyanobacteria
10.30 am - 11.00 am	Morning Tea, University Club
11:30am - 12.30 pm	Identification of common and potentially toxic Cyanobacteria to species
12.30pm - 1.30 pm	Lunch, University Club
2.00pm - 3.00 pm	Practical class: Identification of Cyanobacteria using the new key
3.00 pm - 3.30 pm	Afternoon Tea, University Club
3.30 pm - 5.00 pm	Identification of tropical Cyanobacteria
6.30 pm	Workshop dinner

DAY 3 (Dr. Peter Gell)

9.00 am - 10.30 am	An Introduction to Diatom genera
10.30 am - 11.00 am	Morning Tea, University Club
11.00 am - 12.30 pm	Introduction to Diatom genera contd. (3 genera)
12:30 pm - 1:30pm	Lunch, University Club
1:30pm - 3.00 pm	Practical class: Identifying Diatoms to species
3.00 pm - 3.30 pm	Afternoon Tea, University Club
3.30 pm - 5.00 pm	Identifying to species

REGISTRATION

Cost - $360
- $300 student concession
Registration after January 31, 1999 - $400 ($340 conc)
This includes the BBQ on Day 1, morning tea, afternoon tea and lunch on all three days. Workshop Dinner is extra (approx. $30).

ACCOMMODATION

A variety of accommodations will be available which is in close proximity to the University.

Hotel Richmond, Rundle Mall (across the road from the University) $85 per night, free parking

Adelaide Meridien, Melbourne Street (20 min. walk from the University) $105 per night, Executive Suite

Levi Caravan Park (access by bus, tickets for which are included in cost of registration)
Campsite $14 per night for 2, extra person $6
On-site Caravan $42 per night for 2, extra person $6
Cabin (5 berth) $55 per night for 2, extra person $6
Cabin (4/6 berth)* $66 per night for 2, extra person $6
*Fully Self Contained

Registration Details

Name.....

Address.....
.....
Ph.....
E-mail.....
Fax.....

Please tick the boxes below:

I will be attending and paying (early registration)
☐ $360 ☐ $300 (conc)

I will be attending and paying (late registration)
☐ $400 ☐ $340

I will attend the Workshop Dinner ☐

I will book my own accommodation ☐

Please book accommodation on my behalf at the
☐ Richmond Hotel
☐ Adelaide Meridien
☐ Levi Caravan Park (please specify type below)

WHAT I DO FOR A CRUST(ECEAN?)

A POSTCARD FROM THE FREE MARKET - An Occasional Series by Tim Doeg

If anyone has the time, grab a copy of P.J. O'Rourke's new book "Eat the Rich". It's a expose about economics. It all seems to boil down to a question of freedom. Of the free flow of goods and money around the market. For some reason, suddenly, the ideals of the free market seem more important. Particularly the bits about the free flow of money from one source (i.e. that's you) to another more worthy source (i.e. that's me) in exchange for things that you want that I have (apparently that's the basis of all economics - if you ignore things like derivatives and pork belly futures).

For in July, I gained my own little bit of freedom. I left my job at the Victorian Department of Natural Resources and Environment (oh ... you didn't know .... here's my card) for a different life as an individual private consultant in the aquatic environmental field. It seemed like a good idea at the time, the reasons for which I won't go into (mainly because I may need NRE in the future). Actually, I finished work on July 3, when a lot of you were heading up to Queensland for the conference, and I suspect that I sobered up about the time when you were all flying or driving home the following week (sounded like a good conference ... maybe next year).

And thereafter, a whole new world opened up. No longer needing to wake early in the morning to catch the tram and head for the office. No longer worrying about restructures, annual reports, monthly reports and those pesky e-mails about training opportunities in the latest gee whizz Departmental computer programs. Should be great.

But basically, the BNW (Brave New World) consists of fear. What the hell do I do now? OK, set up the home office - a new computer, internet access, desks, telephone line, bookcases, fax machine, printer, business cards, answering machine ... microscope, nets, tweezers. All those things you take for granted provided at a work place (geez, the termination package seemed attractive ...). Don't want a mobile phone, but will I need one? Fear of being under equipped.

Now what? Luckily, I had organised a few small jobs (Attachment C of Part B of the contract says I can't tell you about them), so start work. Two hours later, time for a coffee and a chat with work colleagues .... oh ... there's no-one else here. Fear of isolation. Make a few calls to keep in touch (that's 20 cents a call - hadn't budgeted for them!). Yes, I had done a rough budget (I wrote it on the back of a scrap of paper that has now gone missing) and it seemed I could make enough money to pay Dan Murphy each month. But personal budget theory has little to do with the real world. Without actual work, the numbers on one side (the budget) don't match the numbers on the other side (the bank balance). What happens if the inflows don't exceed the outflows (more economics)? Fear of poverty.

Almost finished the job. Just need to get hold of that one critical reference and I can send off the report, and that all important first invoice. But there's no direct access to a well stocked library, no access to inter-library loans. It's only then that you realise how much you depend on the library (defend them at all costs!). Fear of lack of adequate information. Well, this

took about an hour to write. Who do I send the bill to? Whadd'ya mean it's for nothing. Don't you know that time is money! Oh dear ... fear of becoming a consultant.

Next time: The good bits, or how playing golf can be a tax deduction.

60 MINUTES

ASL EXECUTIVE TELECONFERENCE, 18 NOV 1998

Present: P. Horwitz, J. Chambers, K. Muller, J. Davis, R. O'Connor, M. Hart, R. Marchant.

Apologies: M. Finlayson, G. Jones, R. Butcher, D. Nias

1 Joint NZ Limnol Soc/ASL conference in 1999: P.Horwitz and J.Chambers will be attending the NZ Limnol. Soc conference in Dunedin this month. They will discuss organisation of next year's joint conference with the NZ organisers. From the ASL viewpoint the only essential item on the conference schedule should be a time slot for the ASL AGM..

2. Workshops 1999: P.Horwitz suggested that as no ASL congress would be held in Australia in 1999 a series of one day workshops on environmental flows could be substituted. Some of the state representatives felt that this topic might not be suitable in all states and that maybe the choice of topic should be left to the local organisers in each state. There was some discussion of this issue and it was felt that the state representatives should seek the opinions of local ASL members to determine topics and seek co-ordinators of such a workshop.

3. ASL congress in 2000: P.Horwitz has concluded that it is not feasible to run a congress in Broome, as proposed in July. However, he and Naomi Rea believe it should be possible to hold a meeting in Darwin and arrange an excursion to the Kimberley region afterwards.

4. ASL Special Publications: The special publication originating from the ASL congress in Albury (1997) cost about $2500. This expense had not been allowed for in the registration fees and thus had to be met by the society. In future, costs of publications from congresses must be incorporated into the registration fees.

5. ASL website: There has been no update to the site since December 1996. It was suggested that a request for a member to maintain the site should be made via the list server and by an advertisement in the newsletter. P.Horwitz suggested that the society should be prepared to pay whoever takes on this task a small honorarium. P. Horwitz will post a detailed explanation of what is involved on the list server.

6. ASL policy documents: P.Horwitz is concerned about difficulties in distributing these documents to non-ASL members. He suggests that the ASL use the networks established by existing community groups to get these documents out to the public. State representatives should use their contacts to get the documents to appropriate people in state government departments. M.Hart also has a list of potential recipients but needs a covering letter from P.Horwitz.

Two other documents are forthcoming, one on urban streams and wetlands and one on carp. All such documents will be circulated to the executive for comment before publication.

7. Finance: Margaret Hart gave the following details of the ASL's accounts – at 31 Oct 1998 the society held:
$15000 in a NAB term deposit;
$18000 in a NAB term deposit;
$8641 in a NAB current account;
$21556 in an ANZ trustee's account.

8. Newsletter: I.Growns has now taken over editorship of the newsletter. The secretary will email Ivor to determine how many issues he plans to put out each year; at the executive meeting before the July congress it was suggested that perhaps only two issues per year should be produced. Members, especially library subscribers, must be informed of any changes in frequency.

9. SIL 2001: R.Marchant (SIL national representative) informed the executive that a sponsorship request would be sent to the ASL, probably early next year, after a preliminary budget for the conference had been drawn up.

10. Merger of Botany and Zoology at the University of Adelaide: K.Muller informed the executive that this merger would occur on Jan 1 1999. She would post a more detailed account of the changes on the list server.

POSTCARD FROM THE SEDGE

River for you –

John Quinn, Valentines Day, 1998 ©

I'm a river for you babe, want to flow along with you
I'm a river for you babe, want to flow along with you
Your my riparian shade, my bedrock cascade
My headwater, love flows from you

I'm a river for you babe, I take the falls for you
You move me to my bedrock, when the storm comes over you
You fill my floodplain, take away the rain
I'm a raging river for you

Wash me from my backwater, you pull me from the hole
Lead me to the thalweg, keep me in the flow
Your my hyporheic zone, renew me its well known
Your loving keeps me flowing free

There's a mayfly in the river, he's only got one day
Just one day babe, to be an adult and play
If I was that mayfly, you know what I'd do
I'd spend my one and only day with you

I'm a river for you babe, want to flow along with you
I'm a river for you babe, want to flow al over you
Your my riparian shade, my bedrock cascade,
My headwater, love flows from you.

John Quinn
j.quinn@niwa.cri.nz

ARTICLES

THRIPS

Members of the insect order Thysanoptera, the thrips, are not commonly associated with aquatic plants, despite one being a major pest of rice. However, Tony Wright of CSIRO, Long Pocket, Brisbane has recently found a thrips breeding in large numbers on Eichornia plants maintained for the production of biological control agents of this noxious water weed. The thrips have been identified by Laurence Mound, CSIRO Entomology, Canberra [laurence@ento.csiro.au] as a species of Organothrips. Only two species are known in this genus, one from Colocasia on Hawaii and other Pacific Islands, and one from India on Typha. The Pacific one is also known from Thailand, and from Cryptocoryne in aquaria in Germany. If anyone comes across this thrips on Eichornia, please forward specimens to Laurence at ANIC, Canberra. The adults are brown with two median and two apical abdominal segments yellow. They are very sluggish, about 1mm long, and live beneath the ligules of the plant amongst the mucous just below the water line. Studies on the biology of the thrips are planned, but establishing its identity and distribution is a first step. Is it Australian or introduced, specific to Eichornia or found on other aquatic plants?

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A PROPOSED DAM SOMEWHERE - FITZROY RIVER

Just to remind readers. The ASL co-sponsored a Technical workshop on the Limnology of the Fitzroy River, convened by myself and held at Edith Cowan University on 18th February 1998 (see review of workshop in ASL Newsletter March 1998, 39(1): 36-44). Following on from the workshop, there has been contact with various government and NGOs in relation to the Fitzroy River issue. On Thursday 2nd April - myself, Pierre Horwitz (ASL president), Michelle Handley (WWF) and others met with the WA Conservation Council and Australian Conservation Foundation representatives to discuss the Fitzroy River issue. On Thursday 30th April the WA State government and Western Agricultural Industries (WAI, the proponents) signed an MOU under which WAI are to undertake feasibility studies to develop groundwater reserves to the south of Broome for irrigated agriculture, and to undertake a pre-feasibility study for damming the Fitzroy River to provide water for irrigated agriculture. Under this MOU, and in relation to Environmental issues, WAI is required to "undertake the required studies and assessments and seek to obtain the necessary approval in conjunction with the feasibility study." On Saturday 2nd May - myself and Rob 'reticulation' Doupe gave presentations on aspects of the ecology of the Fitzroy River to the ALP Environmental Policy Group. The proponent of the proposed cotton development, John Logan also gave a presentation. Following on from this meeting, the ALP (State & Federal) adopted a policy against the proposed development! On Tuesday 26th May - myself, Pierre Horwitz (ASL president) & Michelle Handley (WWF) met with the state minister for the Environment, Dr Cheryl Edwardes (NB. a statement and recommendations from the workshop were sent to Cheryl Edwardes in early March 1998 - requesting a meeting to discuss the proposal). We were assured that every step of the

development, including the irrigation trials using groundwater would be assessed by the Dept of Environmental Protection at the highest level. In addition, the minister was considering assessing the whole project under Section 16e of the EP Act by asking the EPA to 'provide general advice to the Minister' (this is one of the highest levels possible of upfront assessment of a project). All went quiet in the media in relation to the proposed damming of the Fitzroy until WAI announced on Tues 10th November that they had shelved plans to dam the river! They cited cultural and environmental issues as the reasons for not progressing. The proposed development of groundwater resources to the south of Broome is still proceeding and alternatives to the dam, such as extraction from the Fitzroy River to on-farm storages were being considered. So - a small victory for the Fitzroy! However, the possible environmental issues associated with extractions from the Fitzroy and irrigation from on-farm storages have since been highlighted in media articles. Also, considering it was the WA state government-appointed advisory board which identified the Fitzroy River as a resource to be developed - there is nothing to stop some other consortium attempting to impound the Fitzroy River at some time in the future!!! In hindsight, I feel that the workshop and ensuing involvement by various ASL members played a valuable role in preventing the Fitzroy being dammed in this instance, and I hope that members feel this was a worthy cause for the ASL to sponsor. For your information

Andrew Storey

MEDIA RELEASE

Senator the Hon Robert Hill
Leader of the Government in the Senate
Minister for the Environment

NEW NATIONAL RESEARCH CENTRE FOR DARWIN

The Howard Government has announced that a National Centre for Tropical Wetland Research will be established at the Northern Territory University in Darwin. The new research centre will be established with an expected capital injection of around $5 million. The University of Western Australia and Townsville's James Cook University have also been invited to formally establish links with the new centre. Federal Environment Minister Robert Hill says the centre will make Darwin a focal point for both national and international research into tropical wetlands. Senator Hill says the centre will build on the internationally recognised expertise of the Environmental Research Institute of the Supervising Scientist (ERISS). "ERISS has established an international reputation for its work in wetland ecology and management." "Relocating ERISS to the University will lay the foundation for the National Research Centre and help attract the best researchers and students to Darwin." "ERISS will maintain a presence at Jabiru which will serve as a fully operational field unit for the National Research Centre." "This will enable ERISS to continue and strengthen its important statutory role of monitoring the health of the Alligator Rivers Region and assessing potential impacts of uranium mining." "It will also enable researchers and students from around the world to work in a unique natural wetland environment. ERISS's work in the Alligator Rivers Region can only benefit from the increased input, knowledge and skills of researchers and students drawn to Darwin by the National Research Centre." "A recent independent study also identified major benefits for ERISS in relocating to Darwin including enhancing capabilities in stream monitoring, eco-toxicology, wetland ecology and revegetation." Senator Hill says the National Research Centre will also be well-placed to pursue commercial research opportunities, particularly in the Asia-Pacific region. "Australia has an important environmental role to play in the region. The

Centre will provide unparalleled study and research opportunities for students from the region." "The Howard Government will also provide $300,000 a year for a training program for wetlands researchers from other nations in our region." "It will ensure that Australia remains a leader in efforts to protect, conserve and better understand tropical wetlands." "There are also significant economic opportunities for Australian environmental expertise in the Asia-Pacific region." Senator Hill says there will be no job losses through the relocation of ERISS to Darwin, with potential for further job growth.

Media contact: Matt Brown on 02 6277 7640 or 0419 693 515.

August, 27 1998 (101/98)

A CALL FOR MORE SCIENTIFIC TRUTH IN PRODUCT WARNING LABELS

As scientists and concerned citizens, we applaud the recent trend towards legislation that requires the prominent placing of warnings on products that present hazards to the general public. Yet we must also offer the cautionary thought that such warnings, however well- intentioned, merely scratch the surface of what is really necessary in this important area. This is especially true in light of the findings of 20th century physics. We are therefore proposing that, as responsible scientists, we join together in an intensive push for new laws that will mandate the conspicuous placement of suitably informative warnings on the packaging of every product offered for sale in the United States of America. Our suggested list of warnings appears below.

WARNING: This Product Warps Space and Time in Its Vicinity.

WARNING: This Product Attracts Every Other Piece of Matter in the Universe, Including the Products of Other Manufacturers, with a Force Proportional to the Product of the Masses and Inversely Proportional to the Distance Between Them.

CAUTION: The Mass of This Product Contains the Energy Equivalent of 85 Million Tons of TNT per Net Ounce of Weight.

HANDLE WITH EXTREME CARE: This Product Contains Minute Electrically Charged Particles Moving at Velocities in Excess of Five Hundred Million Miles Per Hour.

CONSUMER NOTICE: Because of the "Uncertainty Principle," It Is Impossible for the Consumer to Find Out at the Same Time Both Precisely Where This Product Is and How Fast It Is Moving.

ADVISORY: There is an Extremely Small but Nonzero Chance That, Through a Process Know as "Tunneling," This Product May Spontaneously Disappear from Its Present Location and Reappear at Any Random Place in the Universe, Including Your Neighbor's Domicile. The Manufacturer Will Not Be Responsible for Any Damages or Inconvenience That May Result.

READ THIS BEFORE OPENING PACKAGE: According to Certain Suggested Versions of the Grand Unified Theory, the Primary Particles Constituting this Product May Decay to Nothingness Within the Next Four Hundred Million Years.

THIS IS A 100% MATTER PRODUCT: In the Unlikely Event That This Merchandise Should Contact Antimatter in Any Form, a Catastrophic Explosion Will Result.

PUBLIC NOTICE AS REQUIRED BY LAW: Any Use of This Product, in Any Manner Whatsoever, Will Increase the Amount of Disorder in the Universe. Although No Liability Is Implied Herein, the Consumer Is Warned That This Process Will Ultimately Lead to the Heat Death of the Universe.

NOTE: The Most Fundamental Particles in This Product Are Held Together by a "Gluing" Force About Which Little is Currently Known and Whose Adhesive Power Can Therefore Not Be Permanently Guaranteed.

ATTENTION: Despite Any Other Listing of Product Contents Found Hereon, the Consumer is Advised That, in Actuality, This Product Consists Of 99.9999999999% Empty Space.

NEW GRAND UNIFIED THEORY DISCLAIMER: The Manufacturer May Technically Be Entitled to Claim That This Product Is Ten- Dimensional. However, the Consumer Is Reminded That This Confers No Legal Rights Above and Beyond Those Applicable to Three-Dimensional Objects, Since the Seven New Dimensions Are "Rolled Up" into Such a Small "Area" That They Cannot Be Detected.

PLEASE NOTE: Some Quantum Physics Theories Suggest That When the Consumer Is Not Directly Observing This Product, It May Cease to Exist or Will Exist Only in a Vague and Undetermined State.

COMPONENT EQUIVALENCY NOTICE: The Subatomic Particles (Electrons, Protons, etc.) Comprising This Product Are Exactly the Same in Every Measurable Respect as Those Used in the Products of Other Manufacturers, and No Claim to the Contrary May Legitimately Be Expressed or Implied.

HEALTH WARNING: Care Should Be Taken When Lifting This Product, Since Its Mass, and Thus Its Weight, Is Dependent on Its Velocity Relative to the User.

IMPORTANT NOTICE TO PURCHASERS: The Entire Physical Universe, Including This Product, May One Day Collapse Back into an Infinitesimally Small Space. Should Another Universe Subsequently Re-emerge, the Existence of This Product in That Universe Cannot Be Guaranteed.

IS THERE A SANTA CLAUS?

1.No known species of reindeer can fly. BUT there are 300,000 species of living organisms yet to be classified, and while most of these are insects and germs, this does not COMPLETELY rule out flying reindeer which only Santa has ever seen.

2.There are 2 billion children (persons under 18) in the world. BUT since Santa doesn't (appear) to handle the Muslim, Hindu, Jewish and Buddhist children, that reduces the workload to 15% of the total - 378 million according to Population Reference Bureau. At an average (census) rate of 3.5 children per household, that's 91.8 million homes. One presumes there's at least one good child in each.

3.Santa has 31 hours of Christmas to work with, thanks to the different time zones and the rotation of the earth, assuming he travels east to west (which seems logical). This works out to 822.6 visits per second. This is to say that for each Christian household with good children, Santa has 1/1000th of a second to park, hop out of the sleigh, jump down the chimney, fill the stockings, distribute the remaining presents under the tree, eat whatever snacks have been left, get back up the chimney, get back into the sleigh and move on to the next house. Assuming that each of these 91.8 million stops are evenly distributed around the earth (which, of course, we know to be false but for the purposes of our calculations we will accept), we are now talking about .78 miles per household, a total trip of 75-1/2 million miles, not counting stops to do what most of us must do at least once every 31 hours, plus feeding and etc. This means that Santa's sleigh is moving at 650 miles per second, 3,000 times the speed of sound. For purposes of comparison, the fastest man-made vehicle on earth, the Ulysses space probe, moves at a poky 27.4 miles per second; a conventional reindeer can run, tops, 15 miles per hour.

4.The payload on the sleigh adds another interesting element. Assuming that each child gets nothing more than a medium-sized lego set (2 pounds), the sleigh is carrying 321,300 tons, not counting Santa, who is invariably described as overweight. On land, conventional reindeer can pull no more than 300 pounds. Even granting that "flying reindeer" (see point #1) could pull TEN TIMES the normal anoint, we cannot do the job with eight, or even nine. We need 214,200 reindeer. This increases the payload - not even counting the weight of the sleigh - to 353,430 tons. Again, for comparison - this is four times the weight of the Queen Elizabeth.

5.353,000 tons traveling at 650 miles per second creates enormous air resistance - this will heat the reindeer up in the same fashion as spacecrafts re-entering the earth's atmosphere. The lead pair of reindeer will absorb 14.3 QUINTILLION joules of energy. Per second. Each. In short, they will burst into flame almost instantaneously, exposing the reindeer behind them, and create deafening sonic booms in their wake. The entire reindeer team will be vaporized within 4.26 thousandths of a second. Santa, meanwhile, will be subjected to centrifugal forces 17,500.06 times greater than gravity. A 250-pound Santa (which seems ludicrously slim) would be pinned to the back of his sleigh by 4,315,015 pounds of force.

In conclusion - If Santa ever DID deliver presents on Christmas Eve, he's dead now.

Based on the unoriginal research of Thomas Reusch, January 1995

NEWS FROM FASTS

fasts@anu.edu.au
http://www.usyd.edu.au/su/fasts/

CLINTON: "SEIZE THIS MOMENT"

EMBARGO MIDNIGHT THURSDAY SEPT 10

Australia's science and technology could be left behind in the international race for solutions to medical and environmental problems and the creation of new industries, in the face of massive new investment in S&T by competitors like Great Britain and the United States. Professor Peter Cullen, President of the Federation of Australian Scientific and Technological Societies (FASTS), said the British government recently boosted scientific funding by more than 1 billion pounds ($A2.8 billion). And in the USA, President Clinton earlier this year announced he was "seizing the moment" by doubling American investment in medical health research over the next seven years. "That is the key word - investment," Professor Cullen said. "America is putting this money into medical research because they know it will pay dividends, in terms of lower health care costs and improved quality of life." He contrasted this with tiny increases in Commonwealth support for science and technology over the last three years - 0.8% in 1998-99, 0.4% in 1997-98, 2.7% in 1996-97 (but only if the reduction in the R&D tax concession to industry is excluded.) He said he was sending a copy of President Clinton's speech to leading politicians. Professor Cullen was returning from four weeks in Germany, England, Switzerland, Czechoslovakia and the Republic of Ireland, to release the second in a series of questions FASTS will put to politicians of all parties in the election lead-up: Bill Clinton, President of the world's most successful economy, said earlier this year: "We must seize this moment to strengthen our nation for the new century by expanding our commitment to discovery, increasing our support for science." Then he announced the largest funding increase in American history for science and medical research. What policies have you and your party to encourage Australian scientists to develop their best ideas, and what funding will you apply to enable them to do so? Professor Cullen said that Australians could not stand back to watch other nations solve the problems of the world, and then expect to benefit from their solutions. "Some of the benefits may trickle down eventually," he said. "But we need to be working and investing to keep abreast of the latest developments, to be part of finding the international solutions, and to benefit from patents, intellectual property rights and owning new products." "Australia does have success stories too. The Cooperative Research Centre Program which brings together industry, research groups and government in a partnership to innovation is much admired overseas," he said. "We need more innovative partnerships like that." Professor Cullen called all political parties to say how they will support Australian S&T. He said State and Territory governments, particularly Victoria and Western Australia, had shown an increasing recognition that investment in S&T can pay big dividends.

PRESIDENTS REPORT TO COUNCIL, 1998

1. Introduction

My first twelve months term has been a busy and exciting time. There have been many issues facing Australian science that we have involved ourselves in, and FASTS has become a respected source of opinion on many issues, and is widely reported. We have also lifted our networking capacity with other groups. This sort of collaboration is essential if we are make useful contributions with the limited resources available. We continue to receive excellent press coverage.

I have been invited to give public lectures on aspects of science policy in Adelaide and Brisbane, and have spoken at meetings of a number of Societies, both current members and prospective ones.

2. The 1990 Election and Likely Consequences

FASTS did involve itself in the election. We called a meeting of the NTEU, the academies, the CRC Association and the AVCC and assisted coordination and collaboration in the election. The AVCC and NTEU were able to contribute significantly more resources than FASTS and became active in the campaign. We did develop and disseminate our list of questions which received some media coverage. Vice President Jan Thomas was able to make statements at several fora on science and the election.

It is likely that the forum we held at the national Press Club on University Science: Crisis or Crossroads, helped draw the AVCC into the campaign. We never expected to have a big impact on the election, but it was important to try and keep science on the agenda. In the end we contributed to keeping higher education quite high on the agenda.

However we come out of the election with no clear vision of the sort of Australia the Government seeks. All of the discussion has been about how we will be taxed. It is to be hoped that the new Minister will make a commitment to a "knowledge based" society and will try to develop new policies to stimulate innovation.

3. Prime Minister's Science, Engineering and Innovation Council

Documents are available on WEB site -
http://www.dist.gov.au/science/pmseic/pmseic.html

Membership of PMSEIC is important to FASTS in getting us recognised players in the most important science policy forum in the country, one that is the envy of many other countries. We owe a great debt to Retiring Past President Joe Baker for negotiating our membership of this group with the then Minister Peter McGauran.

3.1 Membership

? Prime Minister and 6 key "Science" Ministers
? Presidents 2 Academies, FASTS, AVCC, BCA, Aust Chamber Commerce & Industry
? Chairs ARC & NHMRC
? CEO CSIRO
? Chief Scientist
? 6 Personal members

3.2 Charter

? Advise on important issues of science
? Examine contribution of science to innovation capacity
? Enhance community awareness
? Examine effective use of science resources
? Examine science infrastructure

3.3 PMSEIC Operations

? Meets in full session twice a year
? Standing Committee, without Ministers, meets more often, chaired by Chief Scientist
? Priorities Working Group (ongoing) Chair John Stocker
? Salinity Working Group (reporting Dec 4th) Chair Peter Cullen
? Nexus between science & applications (reporting Dec 4th) Chair Tim Besley
? Identify opportunities to build vibrant software industry (completed)

3.4 PMSEIC - Priorities Working Group

? Considers topics for investigation and reporting to PMSEIC
? Megascience Working Group
? International opportunities for Australia be involved or host. Presently considering two opportunities:

? Global Biodiversity Information System
? Square Kilometre Array

? Consultancy on R&D statistics

3.5 PMSEIC Structural Framework of Science

To Develop and Maintain a Science Base Appropriate to Australia's Needs:

? Provide a supply of scientific, research, engineering and innovative skills appropriate for Australia's needs and circumstances; ? Add to basic knowledge, particularly of conditions, issues and problems unique or important to Australia;
? Selectively encourage excellent research and researchers;

? Ensure that Australia has access to, and can benefit from, the international stock of basic scientific and engineering knowledge.

To Develop Applicable Knowledge:

? Undertake strategic and applied research in response to Australia's needs and circumstances;
? Ensure that Australia has access to, and can benefit from, the international stock of applicable and strategic research and its outcomes.

To Promote Interaction Amongst Providers and Users of Research:

? Commercialise public-sector research;
? Undertake cooperative research across sectoral boundaries;
? Increase the influence of users of public sector research on the funding of, and setting of agendas for, that research.

To Stimulate Innovation in Industry:

? Promote the conduct of research, development and innovation in industry;
? Improve access to venture capital to facilitate innovation in small firms;
? Ensure that research, development and innovation contribute to achieving an improved industry structure, and the development of products and services which meet the demands of international market places.

To Improve Awareness of Science and Technology:

? Improve science, technology and engineering teaching in schools, and promote the value of innovation;
? Improve scientific, technological and engineering literacy in the community;
? Demonstrate to decision makers in industry the value of science and technology in industrial and economic growth.

3.6 Strengths of PMSEIC

? Direct access of scientists to Ministers
? Whole of Government approach- some balance in trade-offs
? Advocates are tested by knowledgeable and sceptical group
? Hopefully educates and enthuses Ministers
? CSIRO and agencies provide excellent support
? Helps set agency agendas

4. Networking and Consultations

FASTS is a fascinating organisation. We get major national exposure through the outstanding media relations and management of the Executive Director, Toss Gascoigne. We are sought by the media on most science policy issues. I have had less success in

gaining entry to Ministers than my predecessor, Joe Baker. However I do get to see relevant Ministers regularly, and of course have good formal and informal contacts through PMSEIC. Of particular value is a dinner held the night before each PMSEIC when opportunities for discussions with Ministers abound. Toss also works hard at gaining access to Ministers, their staff and departmental officials. During the year we have had fruitful discussions with officers of DIST and DEETYA. We are consulted on a range of issues.

What has become apparent to me during my first year is that FASTS has a considerable role as a broker. We are able to bring different groups together and help form useful alliances. I found it remarkable that we could host a meeting of the AVCC and NTEU on the election and have both agree to share polling and analytical data. Similarly, Toss has played a major role in getting the meeting of State Science agencies to be held in Canberra next week. Toss has been on the planning committee, and I am giving the opening address.

It is apparent we are seen as an honest broker, able to bring players together. We must further develop this capacity.

5. FASTS Policy Development Processes

We do however have some weaknesses that we are addressing, and need to do more on. Our administration and record keeping needs improvement, and the Board has moved to create a position of administrative assistant to help in this area.

I am also concerned about our capacity to develop sophisticated responses to the policy initiatives of others, and to develop innovative policies ourselves. At each Board meeting sector representatives are asked to identify issues of concern to their cluster of members. Frankly, we do not get very useful input from these sessions.

I do not think this is due to apathy. I get a lot of feedback telling us that members like what FASTS does. What we lack is suggestions as to what FASTS should do and ideas on how to do it. We need to explore this issue and find ways of including member societies more in the policy development
process.

The Board will consider developing the present Policy Committee that is chaired by Ken Baldwin into more of a standing committee with potential to coopt members as needs be.

6. Membership

FASTS membership continues to grow around a solid core of societies which have been in the organisation for some time. We have attracted new members and continue to seek other societies to join with us to help lobby the cause of science.

7. Thanks

In conclusion it is important that I pay tribute to the contributions of retiring office bearers. Dr Joe Baker steps down as Immediate Past President. He has made an outstanding contribution to FASTS in gaining us respectability and building on the great foundations of

Graham Johnston before him. As well as that, Joe has given me great counsel on many matters and his experience and wisdom will be missed by me and by FASTS. Chris Easton has also advised that he will be stepping down from the office of Secretary. Again I must thank Chris for the work he has put into FASTS and his wise counsel over my term as President.

Retiring Board members Geoff Hudson, Jaan Oitmas and Craig Johnston have all contributed through the Board to the ongoing development of FASTS. Graham Johnston continues to give us great service by maintaining the Web site.

PRESIDENTS ADDRESS TO COUNCIL, 1998

1. The Challenge of Innovation

I have little doubt that the greatest science policy issue facing Australia relates to the commercialisation and uptake of the fruits of science to provide for a better society. As I said in my address last year:

"Scientists must "add value" to the society in a clear and demonstrable way. We need to articulate the sort of Australia we seek, and how investment in science and technology can help us get there. I believe Australia needs to seek a high technology future, based on our science. We can choose to be part of the "knowledge" world, or choose to go down the low wage, low skill path. The low path seems favoured by our present mix of policies. If we seek the other direction we will need to shift resources into more knowledge intensive industries."

1.1 International Competition

Most other countries seem well in front of us in thinking through this problem and taking action. In the last 12 months President Clinton and UK Prime Minister Tony Blair have both written editorials in the prestigious "Science" announcing significant funding increases to science. The French Minister for National Education, Research and Technology has released a blueprint for science education in France looking to lift international competitiveness and boost funding.

1.2 Building alliances for Lobbying

Early in my term there was intense lobbying by the CRCs and their supporters as the CRC program went before the expenditure review committee, and treasury and others sought to liberate the funds for other purposes. The CRCs are no slouches at public communication and committed real resources to this issue. FASTS also was active. All the conventional things were done including media, letters to and meetings with politicians, and seeking support from other interest groups. This was all carried out professionally and well. But the real powers behind the CRC lobbying were the industry partners who expressed very strong support for what they saw as the benefits to industry of the program. They also used their

political networks, which are different to those used by the science lobby. The success of this campaign is now well known. The Government announced its ongoing support for the CRC program about a month before the budget was announced.

There is a lesson in this. Scientists can push for budget support on all manners of grounds from the aesthetics of science to the utilitarian of a cancer cure. Yet industry pull seems to be a more powerful tool in moving Governments. When both are aligned and giving Governments the same message, then the pressure on politicians becomes intense.

1.3 Some Challenges of Innovation

There are many aspects to innovation, and many reports have been written.
Four fundamental issues are:
§ Do we have the rights sorts of industries?
§ Picking winners and losers
§ How do we stimulate knowledge-based industry?
§ How do we get effective brokerage of ideas across the present chasm?

The Right Industries

The low Australian business expenditure has been a concern for some time. Marceau argues that this is due to the mix of Australian industry which causes us to have low investment by Business in R&D. Our agricultural and mining industries do in fact invest in and use S&T for international competitive advantage. But many of our emerging areas of employment are related to services like pizza delivery where the advantages of research are less apparent.

If this is true, then berating existing industry, developing innovation packages or bribing industry with generous tax concessions may not be effective. Unless industry can see clear competitive advantage, in a realistic time frame, it may be sensible for them to be followers.

Jurisdictions undertaking audits of S&T capacity may do well to include an assessment of the capacity of their industry base to benefit from S&T investment.

Picking Winners and Losers

It is an industry mantra that Governments cannot pick winners, and that this must be left to the private sector. Yet business and competition have not done very well, and have certainly not been prepared to invest in the way their more enlightened colleagues in other countries have been.

If Marceau is correct in her assessment that the existing industries are a key part of the problem, then it is hardly a surprise that they exhort Governments not to pick winners. Their solution is to give generous tax concessions to all.

The reduction of the tax concession for research in Australia led to a marked drop in reported research in the finance industries, with so far only a minor drop in industry research. This might be a function of lag times, or evidence that "bench based" R&D is not so sensitive to the tax deductions. It is also interesting to speculate whether the finance

houses have stopped doing their "research" or whether they just can't see much point in reporting it.

What seems clear is that existing or struggling industries do have the ear of governments. If our industry mix is inappropriate for the future we desire, then who lobbies for the new "knowledge-intensive" companies that do not have advocates in Canberra, or the ability to lobby local members?
Governments have been selecting thematic areas of research for a long time. We have invested heavily in agricultural research and the minerals area. The pressures are to move research priority from these areas towards emerging areas, such as information technology, environment, materials, energy, health and so on. Governments lack an effective bargaining arena for such cross-portfolio choices. and established areas have large and powerful bureaucracies as well as industries fighting for them in a way emerging industries do not. While it is clear that governments are not well equipped to "pick winners" at the project level, it is less clear that standing back and allowing future investment to be driven by past infrastructure is a very smart response.

Stimulating Knowledge-Based Industries

If we are to build companies that use science to develop products and services that the world needs and will pay a premium for, then we need to look at the financial and taxation environment of these companies. Our science is demonstrably good enough. We are failing at the innovation process and in enabling knowledge based companies to stay Australian and to grow their businesses here. The departure of high technology Memtec for the USA suggests we must ask why we cannot provide a competitive business environment in Australia for such firms.

Perhaps these emerging knowledge intensive companies do not even care much if the Australian policy settings are wrong. They are highly desirable international properties and can move to the country that most favours their development.

The Australian Business Foundation report "The High Road or the Low Road: Alternatives for Australia's Future" suggests that Australia, almost alone amongst developed countries, is failing to shift resources into more knowledge intensive industries. Governments are responsible for this through their direct investment and through the financial and taxation environment they provide for industry.

The report identifies a number of strategies for a Government interested in pursuing the high technology, high knowledge route, one of which is sustained investment in education and research, as well as paying real attention to the innovation process. A number of our competitor countries have chosen these strategies. How do we get effective brokerage of ideas across the present chasm?

There is no doubt a major gap in culture exists between the producers of knowledge in our research establishments and the users of knowledge in industry and in Government. There are a few individuals who can bridge the chasm; most players simply do not even understand the language of the other.

Exhorting scientists to learn more about innovation and industry, and imploring Boards to have at least one member who can spell science are useful, but minor steps. The survey you will hear about after lunch highlights some deep seated cultural barriers that need to be acknowledged and confronted.

2 Science in the Universities

FASTS held a most successful one day forum on University Science: Crisis or Crossroads. The forum achieved national publicity and helped focus attention on these problems. Jan Thomas took the lead in organising this outstanding event.

The Federal Governments slash and burn approach to Higher Education is reducing our capacity to undertake fundamental research in the Universities, with a marked swing to strategic and tactical research that can be supported by industry. The CRC program is one spectacularly successful program of industry-research linkage which is attracting international attention. Niland (1998) suggests that this decline in basic sciences is a national disaster and should be urgently addressed by Governments.

Surveys of staff show that morale has collapsed. The lack of resources, increasing work loads, lack of recognition and the almost constant re-organisation have taken a toll and individuals are reacting in a variety of predictable ways. It is clear we are failing to renew the academic talent base. It is also clear that many academics close to retiring age can hang in and perhaps disengage.

International comparisons show that even in our larger well funded Universities we are spending only about 70% per student on higher education than is spent by comparable institutions in comparable countries (Niland, 1998). This sort of information does not support the Government's view that the University sector is inefficient and needs to be further squeezed. Diversity would be seen by some as strength, yet Minister Kemp sees it as inefficiency.

Unfortunately the West report chose not to argue for increased Government spending based on such international comparisons, but sought to transfer more of the cost burden to students.

Courses that are expensive, and where student demand, especially from fee-paying students, is soft, are obvious targets. Monash, which has an international reputation in science, has just cut science by 9%. It is not easy to get facts on these issues. Overall the dip in science enrolments is probably not great; the problem is that sharp drops in basic disciplines like chemistry, physics and mathematics are hidden by rises in applied sciences. The Deans of Science are undertaking a project to improve the basis of application, enrolment and completion statistics.

3 Employment of Young Scientists

The FASTS workshop and resulting publication helped focus attention on the plight of postgraduate students who have bleak career prospects in many fields. There are things we need to do in curriculum to help make these people more employable. We also need to be realistic in the advice we give
to such students about likely career prospects. Hopefully FASTS has helped put these items on the agenda.

"GO ASK YOUR TEACHER"

EMBARGOED MIDNIGHT FRIDAY 21 AUGUST

Dear Presidents of Member Societies

Here is a copy of a FASTS' media release highlighting the shortage of qualified teachers of science and mathematics in our schools and colleges.

It begins the progressive release of the Ten Questions we are posing to politicians of all parties in the forthcoming election.

Australia's peak council for scientists and technologists today (Saturday) urged parents of students at secondary schools and colleges to talk to teachers about the crisis in the supply of qualified science and mathematics teachers.

Ms Jan Thomas, Vice-president of the Federation of Australian Scientific and Technological Societies (FASTS), said that urgent Government action was needed.

"The Government should offer incentives to make teaching an more attractive career for science and mathematics graduates. HECS exemptions and scholarships will encourage good graduates into teaching, and current teachers helped to upgrade their qualifications," she said.

"This is an issue FASTS is adding to the election agenda."

She listed three major problems:

- an imminent shortage of qualified science and mathematics teachers in Australia
- low job satisfaction
- existing teachers lacking appropriate qualifications to teach science and mathematics

Ms Thomas said that teaching science and mathematics was not regarded as an attractive career option. The Preston Report (1997) showed many universities are having difficulty filling their quotas for students training to be science or mathematics teachers.

"The TIMSS Report (1997) showed that 52 per cent of Australian teachers in science and mathematics would prefer to change to another job. That's twice the rate of comparable countries in Europe, North America and Asia," she said.

"We'd suggest this is because too many teachers lack the right qualifications, and they don't feel comfortable with what they are being asked to do.

"Teachers should have at least two years of university study in science and mathematics to take classes at secondary schools and colleges," she said. "These are specialist subjects and require specialist skills. Good teachers enthuse students, but we need more of them."

Ms Thomas was releasing the first in a series of questions FASTS will put to politicians of all parties in the election lead-up, for FASTS' President Professor Peter Cullen who is overseas:
She said that scientists and technologists wanted to cast their vote on the basis of being part of a smart Australia in the 21st century, and were seeking unambiguous answers to their questions. Australia will suffer a serious shortage of qualified science and mathematics teachers in secondary schools and colleges by the year 2000.

How will you and your Party overcome this shortage?

Professor Cullen has written to the Minister for Education Dr David Kemp, to offer FASTS' help in reviewing the training of prospective teachers of science and mathematics.

Interview: Ms Jan Thomas (03) 9688 4401, 041 900 6205, (03) 9328 1722 (H)

Information: Mr Toss Gascoigne (02) 6257 2891, 0411 704 409

WATER, GAS.NOW MATHEMATICS?

THE CLUMSY COUNTRY

The results of a survey conducted in university mathematical sciences departments were released today at the Annual Meeting of the Australian Mathematical Society.

Reflecting the general malaise in the universities, the figures show a reduction of some 20% of academic staff.

Professor Garth Gaudry, Head of School at UNSW and Chair of the Heads of Departments of Mathematical Sciences group, said: "We are headed for a crisis. We cannot sustain a healthy mathematical base in Australia with the level of support we are getting.

"Australia has to start counting the cost of doing things on the cheap. Not enough was spent looking after Sydney's water and the economic cost will be hard to quantify. The impact on Victoria of relying on a single source for gas seems extraordinary, and the cost is going to be enormous.

"The impact of cost cutting in education will be more subtle but the long term impact on mathematics will be very similar." Professor Derek Robinson, Chair of the National Committee for Mathematics, said: "If we are going to be the clever country rather than the clumsy country, then we must have a world class mathematical sciences base. We no longer have such a base. It has got to be rebuilt.

"Many of the best students are going overseas for further study. They will not come back while they face huge teaching loads, uncertain research funding, and continual staff cutbacks. Australia will be the poorer for this."

Both Professors Gaudry and Robinson said that they were proud of the international reputation that the Australian mathematical sciences had developed. "But Australia can not continue to look to the scientific past. There must be an investment for the future," they said. "At the moment that future looks very shaky indeed. Adequate supplies of water and gas distinguish us from third world status. So does an adequate mathematics base. None of these things come cheaply but they are investments for the future."

For interview: Professor Garth Gaudry: 02 9385 7056, 0413 074 900
Professor Derek Robinson: 02 9351 4533, 02 9516 1522 (evenings) until Friday, then 02 6249 0795
For information: Jan Thomas 041 900 6205 (M)

Tertiary Mathematics Survey, Australia

A review of advanced mathematical sciences was completed in late 1995. It suggested that advanced mathematics was surviving but that the base was fragile and that Australia was in danger of losing its good standing in the international mathematical community. The review also highlighted the importance of the mathematical science to Australia's economic competitiveness. The major findings of the review have never been disputed

By the beginning of 1998 it was apparent that the mathematical sciences were approaching a crisis because of repeated funding cuts. The Heads of Mathematical Sciences departments in universities undertook a survey to establish what has happened since 1995.

Summary of findings

Responses have so far been received from 27 tertiary institutions throughout Australia. They reveal a loss of at least 128 academic positions over the period 1995 - 1998. This is a 20% decrease in mathematics staff over a four year period, and further cutbacks are looming. It should be noted that many reported that staff numbers had been reduced in their institutions prior to 1995 so the figures at 1995 were not peak level ones.

Total Academic Staff
(Excluding Research Only Appointments)

Number of respondents	Year		Decrease	% Decrease
	1995	1998		
26*	645	516	129	20

*One group still to provide staff details

This decrease has not occurred uniformly across all groups. In all but one group there has been a decrease in staff over the period 1995-1998 ranging from 1% to 47% and 11% have a decrease in excess of 40% of teaching staff.

Student/staff ratios remain unacceptably high, and the quality of instruction for students has been damaged.

Student Numbers (equivalent full-time)

Year	1995	1996	1997
First	5387	5834	6065
Second	1809	1793	1788
Third	638	601	598
Honours	138	124	124

NOTE: 1998 not included as some institutions do not have final data

Second and third year figures indicate some decline and this should be a concern. Salaries for graduate mathematicians are already rising indicating they are in short supply. The implications for the supply of mathematics teachers should be a national concern.

The pressure on staff has now become extreme. To overcome this many institutions are beginning to reduce course offering and choice for students. Honours programs around Australia are in serious trouble although these are the backbone of postgraduate courses and 4-year graduates are highly valued by business and industry.

Implications

Mathematics is a cornerstone of science and technology and many sections of business and finance. The figures above indicate it to be in crisis. Unless the situation in the mathematical sciences is repaired, Australia may as well give up aspiring to be the clever country.

FASTS CHOOSES NEXT PRESIDENT

Professor Sue Serjeantson of the Australian National University is to be the next President of Australia's peak council for scientists and technologists.

Professor Serjeantson will take up her position as President of the Federation of Australian Scientific and Technological Societies (FASTS) in November 1999, at the conclusion of the term of the current President, Professor Peter Cullen.

Professor Cullen said he was delighted Professor Serjeantson was able to accept the position. "I'm finding it a lively and challenging experience, particularly when it comes to representing 50,000 working scientists and technologists to the Prime Minister's Science, Engineering and Innovation Council," he said.

"There is a new momentum building up in Australia to capture the benefit of the work of our scientists and technologists and FASTS is part of the process. Sue Serjeantson has wide experience in research and policy, and they will be great assets in these discussions."

Professor Serjeantson will be the eighth President, and the second woman to hold the position. A former Director of the Institute of Advanced Studies and Deputy Vice-Chancellor at the ANU, she is currently a Visiting Fellow at the John Curtin School of Medical Research..

She was elected at the Annual Council meeting of FASTS at the National Press Club. The full Executive of FASTS is:

President	Professor Peter Cullen (CRC Freshwater Ecology, Uni of Canberra)
President-elect	Professor Sue Serjeantson (ANU, Canberra)
Vice-presidents	Ms Jan Thomas (Victoria University of Technology, Melbourne)
	Dr Bob Carter (James Cook University, Townsville)
Secretary	Dr John Rice (Flinders University, Adelaide)
Treasurer	Professor Snow Barlow (Bureau of Resource Sciences, Canberra)

DOOR PRIZE REPORT, 1998

First, this report can never match the gold that Tim Doeg brings to this important item on the Agenda, and we trust he resumes his position next year. It is understating the fact to say that the Door Prize is as coveted as the Jolly Award, the ASL Medal, or even the Nobel Prize in Science. As Tim always says, it is not awarded lightly and its recipients have always gone on to greater things. Competition for the Door prize this year was brisk and immediate. Even before 9.00 am on the first day, Pat Comben made an early bid for the prize by alluding to 10 000 orgasms per ml of water from a special wetland that he knows, and described in Parliament. Spurred on by this, our past-President Max Finlayson tried to cancel the Congress prematurely by suggesting that there was "no need for further research in limnology" - all our subsequent papers and posters were rendered redundant. Perhaps Max was quoted out of context but one female nominator for the Door prize did notice that Max, inspired by the previous offer of 10 000 orgasms, sought to titillate the Society by claiming to have "his pointer in his pocket". Did this cause the dive into the fire by an anonymous person one evening? There were other honourable mentions, and these include: Dominic Cheng for his "softly, softly" approach to blackmailing wetland managers and his thinly-disguised hatred for ducks because they leave droppings everywhere; Ben Kefford for his claims that most Australian study sites have snow, Bill Williams for his efforts to bring back the 1970s with his use of technology to create a disco background for his talk, Brian Sorrell for attempting to fill in for Sam Lake, and Renee Kidson for her David Attenborough sound-alike approach. But all of these pale compared to the real effort at Door Prize fame. The plot is a thick one. There is a smoke screen that people will remember from the dinner, especially those near the band. A promise of 10 000 orgasms per ml prompted the lead singer, in a blatant attempt at entrapment, to seduce Gary Jones (John Travolta) with her feather boa. While we were distracted by this, plans had already been in place. Many of us had been surprised but a little blase about signing our lives and rights away on an indemnity form when we arrived at the camp site. It all seemed perfectly safe and innocent. But little did we know that this year's Door Prize winner had colluded with a colleague to use a sparkler (under the guise of US Independence Day celebrations) to set fire to a crowded conference room, and in the confusion and smoke, make his escape. But the plot failed, and **Bill Dennison** wins the 1998 Door Prize.

Andrew Boulton

CONFERENCE REPORTS

11TH WORKSHOP INTERNATIONAL ASSOCIATION OF PHYTOPLANKTON TAXONOMY AND ECOLOGY (IAPTE)

Preston Montford, Shrewsbury, England, August 1998.

Phytoplankton selection across the Trophic Spectrum

The International Association of Phytoplankton Taxonomy and Ecology is an association of scientists with an interest in ecology and taxonomy with no structure and no office bearers. This Association meeting was unlike others in that it focused only on phytoplankton ecology. It was hosted by Dr Colin Reynolds of the British Freshwater Biological Association who recently completed a text on phytoplankton ecology (reviewed in a previous ASL newsletter).

Twenty-nine delegates attended the meeting, held at the Preston Montford Field Centre on a farm within 15 minutes walk of some local pubs. At these pubs, I was introduced to a new rule in pool where the black ball must be sunk in the pocket opposite the pocket where the last ball was sunk. Most delegates were from Europe, a few from South America, one Korean and one Australian. The meeting focused on accounts and explanations of phytoplankton assemblages across the trophic spectrum. A broad definition of trophy was adopted for the meeting, referring to the metabolism of a lake or river, driven commonly by phosphorus enrichment.

A few European papers examined the effects of the reduction of nutrient loadings on lake phytoplankton assemblages, whilst others were on acidic lakes, rivers and reservoirs of varying trophy, and newly impounded water bodies. One interesting exercise was to predict a phytoplankton assemblage and its seasonal changes for a lake for which you were given physical and chemical limnological information. It turned out this information was based on real lakes, all with a temperate bent. The exercise in particular made me really appreciate the difference in the limnology of tropical and temperate water bodies - there is much less seasonal variability in the tropics. The week of presentations and discussion was broken up with two field days, with Colin Reynolds acting as tour guide. This included a walk around the "mere" (local term for groundwater fed lake) Dr Reynolds studied for his Ph. D. thesis - it's now protected under some sort of conservation order (along with other meres in the region).

The meeting concluded with some draft rules of phytoplankton assemblage. These were: 1/ If an inoculum exists, algae grow wherever and whenever they can best meet their potential; 2/ Under given conditions, those with the fastest net sustainable growth rates and/or the largest inocula are likely to be dominant; 3/ The species with the largest inocula have generally been those abundant under similar conditions in the recent past; 4/ Environments may select preferentially certain algal attributes; 5/ Species with preferential attributes are likely to build bigger inocula; 6/ Phytoplankton assemblages become biased in species make-up with respect to the conditions offered in individual water bodies; 7/ The species

characterising specific environments share common advantages; 8/ Phytoplankton assemblage is subject to food-web (and other) interactions ; 9/ Independent of the initial conditions, species with the optimum adaptions should dominate ultimately; 10/ All of the foregoing are subject to environmental variability and its resetting of assembly processes.

Two commentaries on the above were: 1/ Species selection across trophic spectra are part of phytoplankton assemblage pattern; and 2/ The habitat-template paradigm is a promising tool for evaluating species-selective mechanisms.

Proceedings from the meeting will be published in Hydrobiologia. The next IAPTE meeting is in Canada, 1999, with an equal emphasis on phytoplankton taxonomy and ecology.

From Simon Townsend (Dept Lands Planning & Environment, Darwin)

CONFERENCE CAPERS

Send information about forthcoming conferences, workshops or meetings to the editor.

OVERSEAS 1998

- **Water Quality and Waste Treatment: Environmental solutions must be economically sound** - Australia Indonesia Environmental Science Project and Mataram University (Lombok-Indonesia), 3 day conference in Lombok, 19-22 October 1998. For more information visit: http://www.wsc.monash.edu.au/til/conference

- **Ecology Society of Australia** and **New Zealand Ecology Society** joint meeting, 23-27 November 1998, Dunedin New Zealand. Further information from Diane Daly - diane.daly@stonebow.otago.ac.nz, Fax: 03 477 8631 or http://www.otago.ac.nz/zoology/ecology/eco98.html

- **18th International Symposium of the North American Lake Management Society (NALMS)** - "Cooperative Lake and Watershed Management: Linking communities, Industry and Government", 11-13 November 1998, Banff, Canada, Further information via Email: kotak@compusmart.ab.ca or visit the web page at http://www.biology.ualberta.ca/alms/1998.htm

- **International Water Supply Symposium** - "Water Supply Systems in the Urban Environment: Perspectives on the Future", 19-20 November 1998, Tokyo, Japan. Further information from the web page on http://www.tokyo-teleport.co.jp/tokyo-suido/

AUSTRALIA 1999

- **Second Australian Stream Management Conference**, 2-11 February 1999, Adelaide, South Australia. Further details from Jim Burston Ph: 08-8200 3810 Fax: 08-8339 7112 email: jburston@denr.sa.gov.au

- **Inaugural Australian National Algal Workshop**, "An Introduction to the Taxonomy and Ecology of Freshwater Algae and to the taxonomy and identification of Cyanobacteria and Diatoms", 17- 19 February 1999. For inquiries please contact Gertraud Hötzel on Ph 02 6058 3877 or e-mail t.hotzel@latrobe.due.au or Jason Sonneman on Ph 03 9903 2746 or e-mail Jason.Sonneman@sci.monash.edu.au>

OVERSEAS 1999

- **New Zealand Limnological Society (NZLS) and Australian Society for Limnology (ASL)** joint meeting, December 1999, North Island of New Zealand.

FURTHER IN THE FUTURE....

- **28th International Association of Theoretical and Applied Limnology (SIL),** February 2001, Melbourne, Australia.

- **29th International Association of Theoretical and Applied Limnology (SIL),** August 2004, Helsinki, Finland.

BOOK REVIEWS

The Australian Water Mites: A guide to Families and Genera. Harvey, Mark S. (1998). CSIRO and Western Australian Museum. Monographs on Invertebrate Taxonomy volume 4*. Price: $120

This is an attractive, A5 size volume of 150 pages. It is hardbound in black cloth featuring red titles and a line drawing of one of it's subjects. Inside, the text has a catching layout. Chapter names are set on the bottom right of facing pages and page numbers are white within black ellipses. The text font is small but well-spaced and, as there are no dense blocks of text, easy to read. The inclusion of an abstract at the front of the book is useful, as it summarises the taxonomic territory encompassed by the work. In the Introduction, attention is drawn to the ecological and taxonomic diversity of this group of freshwater arthropods. With 22 families, 89 genera and 413 species, the Hydracarina represent a significant component of Australia's aquatic biota. This text aims to consolidate information from over 50 papers into a single identification guide. Those of us who've juggled dozens of papers beside a microscope while identifying a few specimens realise this is needed.

Chapters on the higher classification and phylogeny, biogeography, general biology and morphology follow. I would have liked to see the key to major mite groups placed directly above the relevant figures, rather than over the page from them. The key to families, however, is interleaved with full pages of figures and a reference is provided following the resolution of each family, directing the user to the relevant following page. Six pages of colour plates, mostly of whole preserved mites, are included, arranged in 3 by 3 "Brady Bunch" formation. The following chapters are organised by superfamily, of which there are six. After comments on the superfamily and family, a key to genera and illustrations appear. For each genus, the following information is listed: illustrations within the book; alternative names, with a comment on their current status; diagnosis; distribution, and habitat.

My bug work requires routine identification of field-preserved material within one region to produce ecological data. I ran specimens from several families through the keys to genus. Slide mounting and dissection of limbs is required for some groups in order to view the prescribed characters. For some specimens, identification was assisted by reading beyond the key. For example, my *Rhynchaustrobates* specimen appeared not to have its mouthparts on an extensible tube, but the text for the genus notes that its mouthparts may be withdrawn. Editing problems seem to have resulted in the illustration list of *Unionicola* being incorrect. My preferred technique is to use the Harvey keys in conjunction with the illustrations of the Cook book (Cook 1986). Because it contains drawings of several species of a particular genus, the latter reference assists in getting a feel for intrageneric variation in characters. This helps me to direct, confirm and reinforce my identifications and to use more characters visible under a dissecting microscope.

The taxonomic changes in the book include three at the level of family and two at the genus level. I am grateful that Mark has helped us by including name changes soon to be made in another publication.

At the rear of the book are 16 pages of references, and two appendices: lists of the distribution of described species by state/territory and outside the country, and of taxonomic changes within the work. An index is provided to family, subfamily and genus names.

Water mites are among the most colourful and interesting groups of our invertebrate fauna. This is an important work which I found interesting and inspirational. And it is presented in a very groovy format: thumbs up from me.

Cook, D.R. (1986) Water mites from Australia. Memoirs of the American Entomological Institute. 40: 1-568.

Paul M^{c}Evoy
Australian Water Quality Centre
paul.mcevoy@sawater.sa.gov.au

Oribatid Mites: An interactive glossary of oribatid mites. Hunt, G.S., Norton, R.A., Kelly, J.P.H., Colloff, M.J. and Lindsay, S.M. (1998). CD-ROM, CSIRO Publishing, Melbourne.
AND
Oribatid Mites: An interactive key to oribatid mites of Australia. Hunt, G.S., Colloff, M.J., Dallwitz, M.J. and Walter, D.E. (1998). CD-ROM, CSIRO Publishing, Melbourne.

[This is a package containing a 28 page User Guide book and the two sets of software on CD. Price: $120]

And now to more mites. The Australian Oribatida are much more rich in taxa and more widespread in habitat than are our Hydracarina. Oribatids are found in soil, ground litter, in moss, on mushrooms and in trees. About one sixth of the species in the key are found in freshwater or on marshy ground. The authors estimate that the 320 formally described species represent only 10% of Australia's oribatid fauna. Future editions of the key are planned when the level of taxonomic knowledge increases.

The User Guide is layed out well, containing pasted views from the software, descriptions of each screen button and utilises a question & answer style to demonstrate program features. All users of keys have on occasions railed against their authors when technical terms are not defined or character states not clearly demonstrated. Such a criticism cannot be made of this package. A knowledge of oribatid biology can be achieved by working one's way through the glossary. Alternatively, the glossary and key can be run simultaneously, allowing unfamiliar or unclear terms in the key to be explained by clicking over to the glossary.

The key runs using the INTKEY program using the DELTA database. Its operation is similar to the logic of the keys to Australian aquatic invertebrates. Identification can proceed by allowing the software to calculate a list of "best" characters ranked according to their discriminative power. In most cases, the choice of character state is made by clicking on the appropriate illustration (either a line drawing or SEM micrograph). It is possible to select more than one state where several appear to apply to a specimen. Characters fall into two broad groups: general features such as body form and shape, distribution, family and microhabitat; and specific morphological features like the placement and number of setae and microsculpture. Specific features will all require compound microscopy to be viewed on specimens.

Using drawings of my voucher specimens, I made my way through the key using the general features. Progress was slow, as many of these are low on the list of "best" characters. Selecting the microhabitat character as freshwater reduced the list of 380 taxa to 59, and to 51 for marshy ground. I tried using this both early and later in the identification runs. I did not have much success, so opted for looking through the details of the taxa listed as occurring in riparian/aquatic situations. This is in two forms: vision of mites within the program, and an MS-Word document with complete descriptions of each taxon. There was little match between what I saw on screen and my specimens. For a couple, it was a case of "maybe it is in that family", and others were unresolved. It is likely that the species of 'wet' oribatids are not yet known sufficiently for aquatic taxa to be correctly identified.

At present, these publications are likely to be of limited use to limnologists. This is not surprising, as the cover notes pitch the product at agricultural and forest scientists and soil ecologists. However, we can make use of its features to learn more about the freshwater oribatids and provide the necessary data for future editions. This technology is extremely valuable and its potential for identification of other biota is obvious.

Operating Systems: Windows 3.1, Windows 95, Windows NT4

Minimum Hardware Requirements

- minimum 80486 processor (Pentium recommended)
- minimum 16Mb RAM
- video card + monitor capable of 800 x 600 pixel display (a lower resolution may be used, but requires user to scroll images and is not recommended)
- 2 button mouse

*At present, there are two other books in this series that deal with mites. Volume 5 is a checklist and bibliography of mites of Australia, and no. 6 is a catalogue of Australian genera and species of oribatid mites.

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OUR CHARTER

AUSTRALIAN SOCIETY FOR LIMNOLOGY

The Australian Society for Limnology (ASL) is an Australian-based scientific society whose focus is the study and management of inland waters. The ASL was established in 1961, and has a current membership of over 500 researchers, managers, engineers, teachers and tertiary level students from all states and territories. Members have a strong professional interest in inland aquatic issues, including the maintenance of biodiversity, the maintenance and/or restoration of water quality, and the wise use of aquatic resources. The Society also has a strong interest in fostering the scientific and intellectual development of tertiary students.

The Society includes members working in government agencies, tertiary institutions and many industries related to aquatic resources. Through their daily activities, members have contact with local communities and are in a sound position to interpret and advise on inland water issues. The Society has a substantial knowledge base, and has assumed a responsibility to ensure that this is available to those who manage inland waters.

Accordingly, the charter of the ASL is to further our understanding of Australia's inland waters and to promote their wise use and sustainable management. In this manner we will contribute to the continued existence of this valued resource and the maintenance and enhancement of the quality of life for all Australians.

Forwaded to the ASL newsgroup by Max Finlayson
4 July 1998

ASL VOLUNTEERS

The following people have volunteered to speak as experts on behalf of the ASL. If you wish to be included on the list contact:

Dr Richard Marchant (ASL Secretary)
Email: rmarch@pioneer.mov.vic.gov.au

The following members are prepared to speak on behalf of the ASL on their area of expertise.

Name	Area of Expertise	Contact Details
Prof A. Arthington	in stream flows, ecology of exotic fishes, conservation of rare fishes.	Centre for Catchment & Instream Res, Griffith University, Natham Qld. 4111. Phone (07)275 7403 , Fax: (07)277 3759
Dr P. Boon	bacteriological issues, wetlands.	Environmental Management, Victoria University of Tech., PO Box 14428 MMC, Vic. 3000. Phone (03)9365 2214, Fax (03) 9365 2465. email: paul.boon@vut.edu.au
Dr A. Boulton	intermittent streams, hyporheic zones, Flinders Ranges	Ecosystem Management, University of New England, Armidale, NSW 2351. Phone (02) 67733760, Fax (02) 67732 769 email: aboulton@metz.une.edu.au
Dr M. Brock	temporary wetlands, aquatic plants	Botany Department, University of New England, Armidale NSW 2351. Phone (02)67732 578, Fax (02)67733 283 email: mbrock@metz.une.edu.au
Dr S. Bunn	stream ecology, ecology of riparian zones, biomonitoring	Faculty of Environmental Sciences, Griffith University, Nathan, Qld 4111. Phone (07)8757 407, Fax (07)875 7459, email: s.bunn@ens.gu.edu.au
Dr T. Entwisle	taxonomy and ecology of freshwater macroalgae	National Herbarium of Victoria, Birdwood Ave, South Yarra, Vic. 3141. Phone (03)96552313, Fax (03)9655 2350 email: tentwi@rbgmelb.org.au
Dr M. Finlayson	wetlands, Ramsar convention	Alligator Rivers Region, Office of Supervising Sci, Post Office, Jabiru, NT 0886 Phone (08) 89799756, Fax (08) 89792149 email:maxf@eriss.erin.gov.au
Dr T. Grant	platypus biology	Biological Science, University of NSW, PO Box 502, Cronulla, NSW 2230
K. Hortle	impact of mining, impact of development in Se Asia and PNG on rivers	Environmental Management, 18 Sharrow Road, Mitcham, Vic. 3132 Phone and Fax: (03) 9872 4101

Dr P. Horwitz	conservation of freshwater invertebrates	Dept of Science, Edith Cowan University, Joondalup Drive, Joondalup, WA 6027. Phone (08) 94055717, Fax: (08) 9300 1257 email: phorwitz@cowan.edu.au
Dr P. Humphries	fish ecology, in-stream flows	CRC Freshwater Ecology, MDFRC, PO Box 921, NSW 2640. Phone (02)6043 1002, Fax:(02)6043 1626 email: hump@watson.canberra.edu.au
Dr G. Jones	cyanobacterial blooms	Phone: 07-3896 9516, Fax: 07-3896 9525 email:gary.jones@dnr.qld.gov.au
Dr P.S. Lake	stream ecology, conservation freshwater biota	Ecology & Evolutionary Biology, Monash University, Wellington Road, Clayton, Vic. 3168. Phone (03)9055 653, Fax:(03)9055613 email: p.s.lake@sci.monash.edu.au
Dr V. Matveev	plankton food webs, biomanipulation	MDFRC, PO Box 521, Albury, NSW 2640. Phone: (060) 431002, Fax: (060) 431626.
Dr R. Pearson	tropical freshwater ecology	Zoology Dept. ACTFR, James Cook, University, Townsville, Qld. 4811. Phone:(077) 814 262, Fax: (077)79 6371
Dr W. Ponder	freshwater molluscs	Malacology, Australian Museum, 6 College Street, SYDNEY 2000 Ph: (02) 9320 6120 Fax (02) 9320 6050 Email: winstonp@amsg.austmus.gov.au
J. Puckridge	ecology of arid zone rivers, ecology of freshwater fish	CRCFE, Zoology Department, University of Adelaide, Adelaide, SA 5005. Phone (08) 83034455. Fax: (08) 8303 4364 email: jpuckrid@zoology.adelaide.edu.au
Dr N. Rea	wetland plant ecology, water regime, weeds and conservation	Water Quality Branch, Department Lands, Planning and Environment PO Box 567 Palmerston NT 0831 Phone (08) 8924 6403, Fax: (08) 8924 6410, email: naomi.rea@nt.gov.au
Dr R. Shiel	planktonic & littoral microfauna, billabong ecology.	MDFRC, PO Box 921, NSW, 2640. Phone (02)60431002, Fax: (02)60431626 shielr@mdfrc.canberra.edu.au
Dr L. Townley	: groundwater-surface water interaction.	CSIRO Division of Water Resources, Private Bag, Wembley, WA 6014 Phone (08) 9387 0329, Fax: (08) 93878211
Prof. W.D. Williams	Salt lakes	Zoology Dept, University Adelaide, Adelaide SA 5005. Phone (08) 8303 4455, Fax: (08) 83034364

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NSW EPA. Locked Bag 1502, Bankstown NSW 2200

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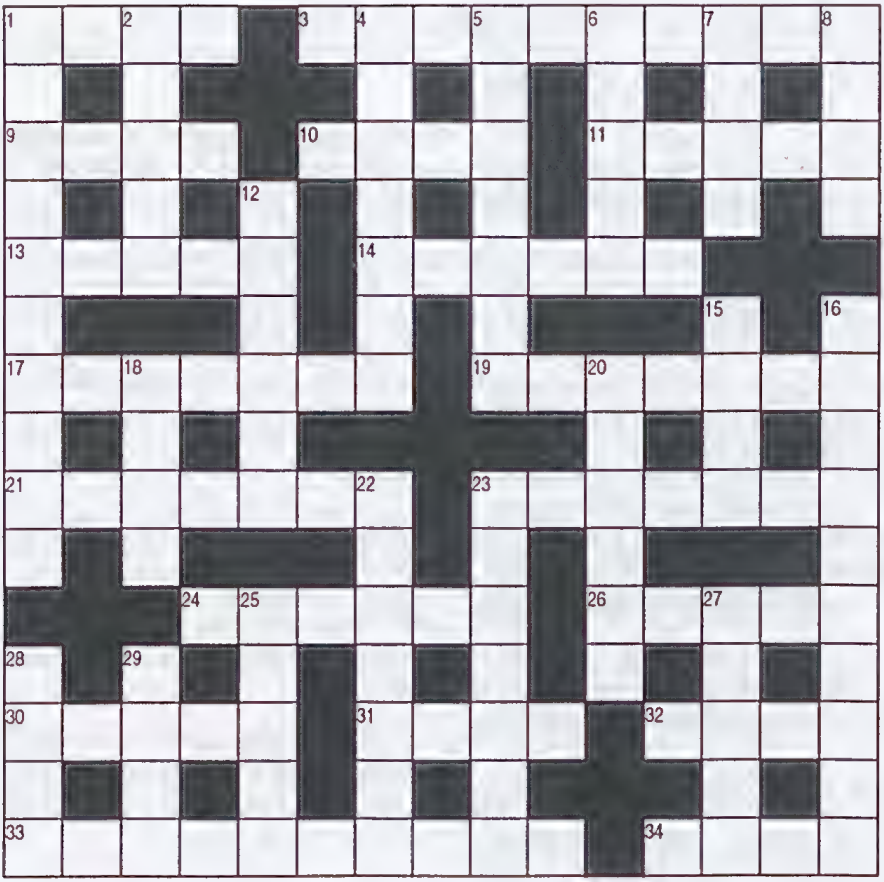
THE X WORD



ACROSS

1 A,C, G, T or U
3 What finches on the Galapogos Islands are good at
9 Thallophyte
10 What an algometer measures
11 Proportional relation
13 Digestive _____
14 The middle value
17 Having two similar complements of chromosomes
19 Example of 21 Across
21 It helps form a solution
23 Arrays of ordered light waves
24 Do genetic surgery

26 AIDS researcher
30 Reef material
31 Disease-causing organism
32 Natural colour of an elephant
33 Epinatal discipline
34 Having or showing reason

DOWN

1 Fertilized ovum spot where the embryo begins
2 Summation symbol
4 Recombinant DNA technology element
5 Truffles' asexual spores
6 Places in the heart
7 Theta follower
8 Inert element
12 Cerebral accident
15 Form of arthritis
16 Liver cell
18 Opisthenar's opposite
20 Capacity to do work
22 Precipitate, as a reaction
23 Acid found in many animal fats
25 It comes from the heart
27 Baby insects
28 Outside: pref.
29 Flower

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